SEPTEMBER 1981 NUMBER 445 -- Part I

Solar-Geophysical Data prompt reports

Data for August 1981, July 1981 & Late Data
Explanation of Data Reports Issued as Number 438 (Supplement) February 1981

PHYSICS-ASTRONOMY LIBRARY
MICHIGAN STATE UNIVERSITY LIBRARIES

Late Data Pages 169-182

noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE / BOULDER, COLORADO

U.S. DEPARTMENT OF COMMERCE
Malcolm Baldrige, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
John V. Byrne, Administrator
ENVIRONMENTAL DATA AND INFORMATION SERVICE
Thomas D. Potter, Director

Solar - Geophysical Data

NO. 445 SEPTEMBER 1981

Part I (Prompt Reports)

DATA FOR
AUGUST 1981
JULY 1981

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

For obtaining bulletins on a data exchange basis, send request to: World Data Center A for Solar-Terrestrial Physics, NOAA/EDIS/NGSDC, D631, 325 Broadway, Boulder, Colorado 80303.

For sale through the National Geophysical and Solar-Terrestrial Data Center, NOAA/EDIS, D631, 325 Broadway, Boulder, Colorado 80303. Subscription Price: $48.00 annually for both part I (Prompt Reports) and part II (Comprehensive Reports) or $24.00 annually for either part. Annual supplement containing explanation is included. For foreign mailing add $32.00 for both parts or $16.00 for either part. Single issue price is $2.00 for either part and $1.75 for the extra issue. Make checks and money orders payable to: Department of Commerce, NOAA/NGSDC. Note: $3.00 handling charge per order.

To standardize referencing these reports in the open literature, the following format is recommended:
Solar-Geophysical Data, 426 Part I (or Part II), pages, February 1980, U.S. Department of Commerce (Boulder, Colorado, U.S.A. 80303)

SOLAR-GEOPHYSICAL DATA

No. 445

Issued in two parts

Helen E. Coffey, Editor

Joe H. Allen, Chief
Solar-Terrestrial Physics Division

CONTENTS

Part I (Prompt Reports)

	PAGE
Index for 1980-1981	2
Data for August 1981	3-49
Data for July 1981	51-167
Late Data	169-182
Interplanetary Scintillations July 1981	
Spectral--Weissenau June 1981	
Cosmic Rays - Climax/Huancayo June 1981	
Sudden Commencements June 1981	
Hourly Equatorial Dst Values May 1981	

Part II (Comprehensive Reports)

Index for 1980-1981	2
Data for March 1981	3-58
Note on Delay of Solar Flare Data	4
Solar Flares January 1980	59-90
Miscellaneous Data	91-92
Regional Flare Index December 1979	

DETAILED COVERAGE FOR 1980-81 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

		1980 Aug	Sep	Oct	Nov	Dec	1981 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
A.	SOLAR AND INTERPLANETARY PHENOMENA													
A.1	Sunspot Drawings	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
A.2a	Zurich Provisional Relative Sunspot Numbers Rz	433A 11	434A 11	435A 11	436A 11	437A 11	---	---	---	---	---	---	---	---
A.2aa	International Provisional Relative Sunspot Numbers R_I						438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11
A.2b	Zurich Final Sunspot Numbers Rz	440A 10	440A 10	440A 10	440A 10	440A 10	---	---	---	---	---	---	---	---
A.2c	American Relative Sunspot Numbers Ra	433A 11	434A 11	435A 11	436A 11	437A 11	438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11
A.3a	Mt. Wilson Magnetograms	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	434A108	435A110	436A112	437A120	438A106	439A108	440A108	441A120	442A112	443A106	444A112	445A116	
A.3c	Kitt Peak Magnetograms	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
A.3d	Mean Solar Magnetic Field (Stanford)	433A 40	434A 38	435A 42	436A 42	437A 48	438A 36	439A 38	440A 46	441A 50	442A 44	443A 38	444A 46	445A 47
A.3e	Stanford Magnetograms	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	439A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
A.4	H-alpha Filtergrams	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
A.5	Calcium Plage Drawings - Mt. Wilson	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
A.5a	Calcium Plage (Mt. Wilson) and Sunspot Regions	434A108	435A110	436A112	437A120	438A106	439A108	440A108	441A120	442A112	443A106	444A112	445A116	
A.5b	Mt. Wilson Daily Calcium Plage Indices	434A125	435A127	436A127	437A134	438A121	439A123	440A121	441A135	442A127	443A119	444A122	445A129	
A.6	H-alpha Synoptic Charts		435A 46	436A 46	437A 52	438A 40	439A 42	440A 48	441A 54	442A 48	443A 42	444A 50	445A 52	
A.6b	Synoptic Chart and Active Regions (Paris)	439B121	440B 48	442B 84	444B 52	444B 54	444B 56	444B 58						
A.6c	Stanford Solar Magnetic Field Synoptic Charts	434A 43	435A 47	436A 47	437A 54	438A 41	439A 43	440A 49	441A 55	442A 49	443A 43	444A 51	445A 53	
A.6d	Kitt Peak Solar Magnetic Field Synoptic Charts	434A 44	435A 48	436A 48	437A 56	438A 42	439A 44	440A 50	441A 56	442A 50				
A.6e	Mass Ejections from the Sun	438B 29	439B 28	440B 38	441B 51	443B 62	443B 26	444B 48	445B 57					
A.7f	Helium D3 Chromosphere (Big Bear)	433A 35	436A177	436A177	436A 39	437A 44	438A 33	439A 39	441A170	---	---	443A 35	444A 43	
A.7g	Helium Synoptic Maps (KPNO)	434A 45	435A 49	436A 49	437A 58	438A 43	439A 45	440A 51	441A 57					
A.7h	Coronal Line Emission (Sac Peak)	434A 46	435A 50	436A 50	437A 60	438A 44	439A 46	440A 52	441A 58	442A 52	443A 44	444A 52	445A 54	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	433A 11	433A 11	435A 11	436A 11	437A 11	438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	433A 11	433A 11	435A 11	436A 11	437A 11	438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	433A 11	434A 11	435A 11	436A 11	437A 11	438A 11	439A 9	440A 11	441A 13	442A 11	443A 9	444A 11	445A 11
A.10a	169 MHz - Interferometric Observations (Nancay)	433A 22	434A 25	436A176	438A160	438A161	439A154	439A 24	440A 29	442A160	442A 27	443A 23	444A 27	445A 27
A.10c	21 cm East-West Solar Scans (Fleurs)	433A 25	434A 28	435A 30	436A 29	437A 34	438A 24	439A 27	440A 32	441A 33	442A 30	443A 26	444A 30	445A 30
A.10d	43 cm East-West Solar Scans (Fleurs)	433A 26	434A 29	435A 31	436A 30	437A 35	438A 25	439A 28	440A 33	441A 34	442A 31	443A 27	444A 31	445A 31
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	433A 24	434A 27	435A 29	436A 28	437A 33	438A 23	439A 26	440A 31	441A 32	442A 29	443A 25	444A 29	445A 29
A.10f	3 cm East-West Solar Scans (Toyokawa)	433A 23	434A 26	435A 28	436A 27	437A 32	438A 22	439A 25	440A 30	441A 31	442A 28	443A 24	444A 28	445A 30
A.11g	Solar X-ray (SMS/GOES) (graphs)	438B 23	439B 23	440B 32	441B 46	442B 36	443B 20	444B 43	445B 51					
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	---	---	---	---	---	---	---	---	---	---	---	---	---
A.12e	Energetic Solar Particles (IMP H & J)													
A.13a	Solar Wind (Pioneers 6 & 7)	433A 36	---	---	---	---	---	---	---	---	---	---	---	---
A.13ab	Solar Wind (Pioneers 8 & 9)	433A 37	---	---	---	---	---	---	---	---	---	---	---	---
A.13d	Solar Wind from IPS Measurements	433A 31	434A 34	435A 37	436A 37	437A 41	442A161	442A161	442A161	442A161	442A 39	443A 32	445A170	445A 42
A.13e	Solar Plasma (IMP H & J)	443B 64	443B 65	443B 66	443B 67									
A.13f	Solar Wind (Pioneer 12 (Venus))	433A 37	435A160	435A 43	436A 43	437A 45	438A 37	442A170	442A170	442A171	442A 45	443A 39	444A 47	445A 45
A.17	Interplanetary Magnetic Field (Pioneer 9)	433A 37	---	---	---	---	---	---	---	---	---	---	---	---
A.17	Interplanetary Magnetic Field (Pioneer 12)	---	---	436A132	438A162	438A125	439A127	440A153	---	---	---	444A126	445A135	
A.17c	Inferred IP Magnetic Field	433A 38	436A 40	436A 40	436A 40	437A 46	438A 34	439A 36	440A 44	441A 48	442A 42	443A 36	444A 44	445A 46
A.18	Interplanetary Electric Field (Pioneer 9)	---	---	---	---	---	---	---	---	---	---	---	---	---
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA													
B.52	Graphs of Transmission Frequency Range	434A154	435A156	436A172	437A170	438A156	439A150	440A154	441A167	442A156	443A150	444A148	445A166	
B.53	Quality Figures Based on Frequency Ranges	434A153	435A158	436A174	437A169	438A155	439A152	440A156	443A166	442A158	443A149	444A150	445A165	
C.	FLARE-ASSOCIATED EVENTS													
C.1a	Optical Observations Flares	433A 16	434A 16	435A 16	436A 16	437A 16	438A 16	439A 14	440A 18	441A 18	442A 16	443A 15	444A 16	445A 16
C.1ba	Optical Observations Flares (Standardized Data)	436B 50	439B 30	439B 73	442B 44	443B 28	445B 60							
C.1d	Flare Patrol Observations	433A 21	434A 24	435A 27	436A 26	437A 31	438A 21	439A 23	440A 28	441A 30	442A 26	443A 22	444A 26	445A 26
C.1d	Flare Patrol Observations	436B 89	439B 71	439B116	442B 82	443B 59	445B 90							
C.1e	Flare Indices (by day)	436B 88	439B 70	439B115	442B 81	443B 58	445B 89							
C.1f	Flare Indices (by Region)	439B122	439B 72	442B 86	443B 68	445B 92								
C.3	Solar Radio Waves - Outstanding Occurrences	438B 5	439B 5	440B 5	441B 5	442B 5	443B 5	444B 5	445B 5					
	Solar Radio Waves - Fixed Frequencies - Selected	433A 27	434A 30	435A 32	436A 31	437A 36	438A 26	439A 29	440A 34	441A 35	442A 32	443A 28	444A 32	445A 32
C.4a	Solar Radio Spectral Obs. (Fort Davis)	434A129	435A131	436A133	437A139	439A155	439A128	440A126	441A136	442A134	443A123	444A127	445A136	
C.4d	Solar Radio Spectral Obs. (Culgoora)	434A129	435A131	436A133	437A139	438A126	439A128	440A126	441A136	443A154	443A123	444A127	445A136	
C.4e	Solar Radio Spectral Obs. (Weissenau)	434A129	435A131	436A133	437A139	439A126	439A128	440A126	441A136	442A134	443A123	445A174	445A136	
C.4f	Solar Radio Spectral Obs. (Saganore Hill)	434A129	435A131	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123	444A127	445A136	
C.4h	Solar Radio Spectral Obs. (Hwingeloo)	434A129	435A131	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123	444A127	445A136	
C.4i	Solar Radio Spectral Obs. (Bleien)	434A129	435A131	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123			
C.4j	Solar Radio Spectral Obs. (Manila)													
C.4k	Solar Radio Spectral Obs. (Learmonth)	434A129	435A131	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123	444A127	445A136	
C.4l	Solar Radio Spectral Obs. (Palehua)	434A129	435A131	436A133	437A139	438A126	439A128	440A126	441A136	442A134	443A123	444A117	445A136	
C.5a	Solar X-ray (SMS/GOES) (graphs)	438B 23	439B 23	440B 32	441B 46	442B 36	443B 20	444B 43	445B 51					
C.6	Sudden Ionospheric Disturbances	434A126	435A128	436A128	437A135	438A122	439A124	440A122	442A172	442A128	443A120	444A123	445A130	
D.	GEOMAGNETIC AND MAGNETOSPHERIC PHENOMENA													
D.1a	Geomagnetic Indices Kp, Km, Ks, Km, Ap, aa, Cp	434A147	435A152	436A166	437A163	438A149	439A145	440A149	441A162	443A164	443A144	444A144	445A160	
D.1ba	27-day Chart of Kp Indices	434A149	435A154	436A168	437A165	438A151	439A147	440A151	441A164	442A153	443A146	444A146	445A162	
D.1c	27-day Chart of C9	441A165	441A165	441A165	441A165	441A165								
D.1ca	aa graph 1868 - present													
D.1d	Principal Magnetic Storms	434A152	435A155	436A171	437A168	438A154	439A148	440A152	441A166	442A155	443A147	444A147	445A163	
D.1e	Reduced Magnetograms													
D.1f	Sudden Commencement and Solar Flare Effects	435A164	436A179	437A176	437A169	439A163	439A149	441A170	442A180	443A165	443A148	445A180	445A164	
D.1g	Equatorial Indices Dst		436A178	436A168	437A167	438A153	440A160	441A172	442A182	444A155	445A182			
D.1h	Geomagnetic Substorm Log (Boulder)	433A 41	434A 40	435A 44	436A 44	437A 49	438A 38	439A 40	440A 43	441A 51	442A 46	443A 40	444A 48	445A 4
F.	COSMIC RAYS													
F.1a	Cosmic Ray Neutron Counts (Deep River)	434A146	435A151	436A165	438A163	439A162	440A159	440A145	442A177	442A151	444A152			
F.1b	Cosmic Ray Neutron Counts (Climax)		436A165	438A163	438A163		440A159	442A177	442A177	442A151	443A141	445A178		
F.1e	Cosmic Ray Neutron Counts (Alert)	434A146	435A151	436A165	438A163	439A162	440A159	440A145	442A177	442A151	444A152			
F.1h	Cosmic Ray Neutron Counts (Thule)	434A146	435A151	436A165	437A162	438A148	439A144	440A145	441A159	442A151	443A141	444A141	445A157	
F.1i	Cosmic Ray Neutron Counts (Kiel)	434A146	435A151	436A165	437A162	438A148	439A144	440A145	441A159	442A151	443A141	444A141	445A157	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	434A146	435A151	436A165	437A162	438A148	439A144	440A145	441A159	442A151	443A141	444A141	445A157	
F.1l	Cosmic Ray Neutron Counts (Huancayo)	437A175	437A175	438A163	439A162	439A162	442A177	442A177	442A177	443A163	443A141	445A178		
H.	MISCELLANEOUS													
H.60	IUWDS Alert Decisions	433A 5	434A 5	435A 5	436A 5	437A 5	438A 5	439A 4	440A 5	441A 5	442A 5	443A 5	444A 5	445A 5
H.62	Abbreviated Calendar Record													

Notes:

"434A 46" listed under 1980 Aug means that the sunspot drawings for Aug 1980 were contained in *Solar-Geophysical Data* Number 434 - Part I, beginning on page 46.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

SGD 445 Part I (Prompt)

AUGUST 1981 DATA

Contents

	Page
Alert Periods	
IUWDS Alert Periods (Advance and Worldwide)	4-9
Daily Solar Indices	
Relative Sunspot Numbers, R_z or Ri, and Daily Solar Flux at 2800 MHz (12 Month Tables)	10
Daily Solar Indices (Sunspot Numbers and Solar Fluxes)	11
Observed and Predicted Solar Activity Indices	12
Smoothed Observed and Predicted Sunspot Numbers	13
Graph of Observed and Predicted Sunspot Numbers	14
Graph of Superposition of Cycles 18, 19 and 20	15
Solar Flares	
H-alpha Solar Flares	16-25
Intervals of No Flare Patrol Observation	26
Solar Radio Emission	
169 MHz Solar Interferometric Chart - Nancay	27
3 cm East-West Solar Scans - Toyokawa	28
10.7 cm East-West Solar Scans - ARO, Ottawa	29
21 cm East-West Solar Scans - Fleurs	30
43 cm East-West Solar Scans - Fleurs	31
Selected Fixed Frequency Events	32-40
Selected Solar Noise Bursts	41
Solar Wind Measurements	
Interplanetary Scintillations	42-44
Coronal Holes	
Helium D3 Chromosphere (Data not available at time of publication.)	
Spacecraft Observations	
Pioneer XII (Pioneer Venus) Solar Wind	45
Inferred Interplanetary Magnetic Field Polarities	46
Mean Solar Magnetic Field	
Stanford Mean Solar Magnetic Field (Chart)	47
Stanford Mean Solar Magnetic Field (Table)	48
Geomagnetic	
Boulder Geomagnetic Substorm Log	49

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1981

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

04 AUGUST 1981 PRESTO BOULDER 04/1650Z TENFLARE 270 FLUX UNITS 04/1529Z DURATION 4 MINUTES
07 AUGUST 1981 PRESTO BOULDER 07/1920Z SOFLARE M4/2B S10E24 07/1902Z DURATION 33 MINUTES
07 AUGUST 1981 PRESTO BOULDER 07/1920Z TENFLARE 480 FLUX UNITS 07/1907Z DURATION 21 MINUTES
10 AUGUST 1981 PRESTO BOULDER 10/0115Z PROTON EVENT 12 PROTONS/CM2/SEC/STER AT GREATER THAN 10 MEV
10 AUGUST 1981 PRESTO KAKIOKA 10/0610Z MAGSTORM 10/0435Z
10 AUGUST 1981 PRESTO TOYOKAWA 10/0740Z TENFLARE 110 FLUX UNITS 10/0632Z DURATION 7 MINUTES
10 AUGUST 1981 PRESTO TOYOKAWA 10/0745Z TENFLARE 250 FLUX UNITS 10/0657Z DURATION 13 MINUTES
10 AUGUST 1981 PRESTO SYDNEY 10/1445Z SSC 70 GAMMA 10/0436Z
10 AUGUST 1981 PRESTO TOYOKAWA 10/0846Z TENFLARE 120 FLUX UNITS 10/0745Z DURATION 5 MINUTES
11 AUGUST 1981 PRESTO BOULDER 11/0200Z SOFLARE M4/2B S13W24 11/0144Z DURATION 3 MINUTES
11 AUGUST 1981 PRESTO BOULDER 11/0200Z TENFLARE 630 FLUX UNITS 11/0144Z DURATION IN PROGRESS
11 AUGUST 1981 PRESTO SYDNEY 11/0205Z TENFLARE 620 FLUX UNITS 11/0144Z DURATION 10 MINUTES
11 AUGUST 1981 PRESTO TOYOKAWA 11/0221Z TENFLARE 370 FLUX UNITS 11/0143Z DURATION 17 MINUTES
11 AUGUST 1981 PRESTO BOULDER 11/1256Z SOFLARE M4/2B 11/0741Z S13W16 DURATION 8 MINUTES
12 AUGUST 1981 PRESTO TOYOKAWA 12/0716Z TENFLARE 890 FLUX UNITS 12/0624Z DURATION 36 MINUTES
12 AUGUST 1981 PRESTO BOULDER 12/0836Z TENFLARE 770 FLUX UNITS 12/0625Z DURATION 11 MINUTES
13 AUGUST 1981 PRESTO TOYOKAWA 13/0010Z TENFLARE 210 FLUX UNITS 12/2226Z DURATION 7 MINUTES
13 AUGUST 1981 PRESTO TOYOKAWA 13/0402Z TENFLARE 140 FLUX UNITS 13/0249Z DURATION 11 MINUTES
17 AUGUST 1981 PRESTO SYDNEY 17/0125Z SSC 17/0046Z
22 AUGUST 1981 PRESTO MEUDON 21/1000Z TYPE IV NANCAY 21/0828Z MAX 0916Z NEAR CENTRAL MERIDIAN
22 AUGUST 1981 PRESTO MEUDON 21/1000Z SOFLARE MEUDON IN REGION 3279 AROUND S17E02 IN PROGRESS 21/1000Z
22 AUGUST 1981 PRESTO TOYOKAWA 21/0855Z TENFLARE 530 FLUX UNITS 21/0826Z IN PROGRESS
27 AUGUST 1981 PRESTO TOYOKAWA 27/0513Z TENFLARE 140 FLUX UNITS 27/0315Z DURATION 45 MINUTES
27 AUGUST 1981 PRESTO BOULDER 27/0428Z SOFLARE M9/2B S11W40 27/0419Z DURATION 30 MINUTES
27 AUGUST 1981 PRESTO BOULDER 27/0700Z SOFLARE M7/2B S10E76 27/0556Z DURATION 17 MINUTES
29 AUGUST 1981 PRESTO BOULDER 29/2301Z TENFLARE 330 FLUX UNITS 29/1949Z DURATION 59 MINUTES
30 AUGUST 1981 PRESTO BOULDER 30/1853Z SOFLARE M1/2B N16W03 30/1853Z DURATION 20 MINUTES

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1981

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of obser-vation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
213	01	31	216	192	010	S05W80	1	0	0	Presto Soflare	01	S05W80	Q	SOLALERT 01/03
						S11W53	14	1	0	M5/2B S11W33 30/		S11W53	Q	MAGQUIET
						S18W49	0	0	0	2346Z Duration 22		S18W49	Q	
						N11W41	2	0	0	Minutes. Presto		N11W41	Q	
						S03W40	0	0	0	Tenflare 140 Flux		S03W40	Q	
						S18W22	0	0	0	Units 30/2326Z		S18W22	Q	
						S05W16	0	0	0	Duration 30 Minutes		S05W16	Q	
						N16E19	2	0	0	Presto Tenflare		N16E19	E	
						N10E50	0	0	0	269 Flux Units 31/		N10E50	Q	
										0053Z Duration 9				
										Minutes				
214	02	01	157	176	021	S06W90	3	0	0		02	S06W90	Q	SOLALERT 02/03
						S11W66	2	0	0			S11W66	Q	MAGQUIET
						S19W62	0	0	0			S19W62	Q	
						N11W54	0	0	0			N11W54	Q	
						S04W53	0	0	0			S04W53	Q	
						S04W31	1	0	0			S04W31	Q	
						N23W25	0	0	0			N23W25	Q	
						N17E06	6	0	0			N17E06	E	
215	03	02	174	174	012	S12W78	3	0	0		03	N12W78	Q	SOLALERT 03/04
						S20W76	2	0	0			S20W76	Q	MAGQUIET
						N09W71	0	0	0			N09W71	Q	
						S04W66	0	0	0			S04W66	Q	
						S06W43	0	0	0			S06W43	Q	
						N23W39	2	0	0			N23W39	Q	
						S08W29	0	0	0			S08W29	Q	
						N16W07	3	0	0			N16W07	E	
						N11E87	0	0	0			N11E87	Q	
216	04	03	189	183	017	S19W91	0	0	0		04	S19W91	Q	SOLNIL
						N10W87	1	0	0			N10W87	Q	MAGQUIET
						S12W86	4	2	0			S12W86	Q	
						S04W81	1	0	0			S04W81	Q	
						S05W54	0	0	0			S05W54	Q	
						N23W51	1	0	0			N23W51	E	
						S08W42	0	0	0			S08W42	Q	
						N16W22	1	0	0			N16W22	E	
						N11E70	4	0	0			N11E70	Q	
						S09E76	3	1	0			S09E76	Q	
217	05	04	158	181	014	S05W69	0	0	0	Presto Tenflare	05	S05W69	Q	SOLQUIET
						N23W63	1	0	0	270 Flux Units		N23W63	E	MAGQUIET
						S08W57	0	0	0	04/1529Z Duration		S08W57	Q	
						N16W36	2	0	0	4 Minutes.		N16W36	E	
						N10E55	1	0	0			N10E55	E	
						S09E66	7	1	0			S09E66	A	
218	06	05	171	174	013	S04W83	0	0	0		06	S04W83	Q	SOLQUIET
						N24W75	0	0	0			N24W75	E	MAGQUIET
						S08W72	0	0	0			S08W72	Q	
						N17W48	0	0	0			N17W48	E	
						S24E24	0	0	0			S24E24	Q	
						N10E43	2	0	0			N10E43	E	
						S09E54	9	0	0			S09E54	A	
219	07	06	170	170	016	N24W87	0	0	0		07	N24W87	E	SOLALERT
						S09W84	0	0	0			S09W84	Q	MAGQUIET
						N16W63	1	0	0			N16W63	E	
						S25E11	0	0	0			S25E11	Q	
						N10E30	1	0	0			N10E30	E	
						S09E40	10	1	0			S09E40	A	
						N24E64	0	0	0			N24E64	Q	
						S13E78	0	0	0			S13E78	Q	
220	08	07	160	168	010	N15W76	0	0	0	Presto Soflare	08	N15W76	Q	SOLALERT 08/10
						S25W00	0	0	0	M4/2B S10E24 07/		S25W00	Q	MAGQUIET
						N10E18	0	0	0	1902Z Duration 33		N10E18	Q	
						S10E25	5	1	0	Minutes. Presto		S10E25	A	
						N25E53	2	0	0	Tenflare 480 Flux		N25E53	Q	
						S13E60	0	0	0	Units 07/1907Z Dur-		S13E60	Q	
										ation 21 Minutes.				
221	09	08	189	174	004	N15W91	0	0	0		09	N15W91	Q	SOLALERT 09/11
						N15W26	0	0	0			N15W26	Q	MAGALERT FLARE 09/10
						N10E05	0	0	0			N10E05	Q	
						S10E11	4	1	0			S10E11	A	
						S26E15	1	0	0			S26E15	Q	
						N24E41	0	0	0			N24E41	Q	
						S13E47	0	0	0			S13E47	Q	
222	10	09	203	176	008	N15W41	4	0	0	Presto Proton Event	10	N15W41	Q	SOLALERT 10/12
						S24W28	2	0	0	12 Particles/CM2/SEC		S24W28	Q	MAGALERT MINOR 10
						N10W10	0	0	0	/STER At Greater		N10W10	Q	
						S10W02	5	0	0	Than 10 MEV 10/0115Z		S10W02	A	
						N25E27	0	0	0			N25E27	Q	
						S12E30	0	0	0			S12E30	Q	
						S09E62	0	0	0			S09E62	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1981

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
223	11	10	181	177	019	N14W56	1	0	0	Presto Magstorm	11	N14W56	Q	SOLALERT 11
						S25W42	0	0	0	10/0435Z Presto Ten-		S25W42	Q	MAGNIL
						N10W23	1	0	0	flare 110 Flux Units		N10W23	Q	
						S10W16	4	1	0	10/0632Z Duration		S10W16	A	
						N25E14	0	0	0	7 Minutes. Presto		N25E14	Q	
						S13E16	0	0	0	Tenflare 250 Flux		S13E16	Q	
						S08E49	1	0	0	Units 10/0657Z Dur-		S08E49	Q	
						S32E65	0	0	0	ation 13 Minutes.		S32E65	Q	
						S14E67	0	0	0	Presto SSC 70 Gamma 10/0436Z. Presto Tenflare 120 Flux Units 10/0745Z Duration 5 Minutes		S14E67	Q	
224	12	11	235	199	014	N15W71	0	0	0	Presto Soflare	12	N15W71	Q	SOLALERT 12/14
						S24W55	2	0	0	M4/2B S13W24 11/		S24W55	Q	MAGQUIET
						N11W36	0	0	0	0144Z Duration 25		N11W36	Q	
						S10W30	8	3	0	Minutes. Presto		S10W30	A	
						N24E00	0	0	0	Tenflare 630 Flux		N24E00	Q	
						S12E02	0	0	0	Units 11/0144Z		S12E02	Q	
						N03E12	0	0	0	Duration 18 Minutes		N03E12	Q	
						S09E34	0	0	0	Presto Soflare M4/2B		S09E34	Q	
						S31E50	0	0	0	S13W16 11/0741Z		S31E50	Q	
						S16E53	0	0	0	Duration 8 Minutes.		S16E53	Q	
						S18E83	0	0	0			S18E83	Q	
225	13	12	254	198	010	N15W87	0	0	0	Presto Tenflare	13	N15W87	Q	SOLALERT 13/14
						S24W70	3	0	0	660 Flux Units		S24W70	Q	MAGALERT 14
						N10W51	0	0	0	12/0625Z Duration		N10W51	Q	
						S09W44	17	4	1	11 Minutes		S09W44	A	
						S17W38	0	0	0			S17W38	Q	
						N24W14	1	0	0			N24W14	Q	
						S12W12	0	0	0			S12W12	Q	
						N05W02	0	0	0			N05W02	Q	
						S07E28	0	0	0			S07E28	Q	
						N12E35	0	0	0			N12E35	Q	
						S30E35	0	0	0			S30E35	Q	
						S20E53	0	0	0			S20E53	Q	
						N14E58	0	0	0			N14E58	Q	
						S16E72	3	1	0			S16E72	E	
226	14	13	226	220	008	S22W82	0	0	0	Presto Tenflare	14	S22W82	Q	SOLALERT 14/16
						N11W62	0	0	0	210 Flux Units		N11W62	Q	MAGALERT
						S09W57	14	5	0	12/2226Z Duration		S09W57	A	
						S05W57	0	0	0	7 Minutes Presto		S05W57	Q	
						S18W50	0	0	0	Tenflare 140 Flux		S18W50	Q	
						S12W25	0	0	0	Units 13/0249Z		S12W25	Q	
						N04W18	0	0	0	Duration 11 Minutes		N04W18	Q	
						N15W15	0	0	0			N15W15	Q	
						S09E07	0	0	0			S09E07	Q	
						S13E30	0	0	0			S13E30	Q	
						S21E41	0	0	0			S21E41	Q	
						S16E59	1	0	0			S16E59	A	
227	15	14	242	220	009	N11W76	0	0	0		15	N11W76	Q	SOLALERT 15/XX
						S05W72	0	0	0			S05W72	Q	MAGALERT 15
						S09W70	6	0	0			S09W70	A	
						S18W63	0	0	0			S18W63	Q	
						N25W39	2	1	0			N25W39	Q	
						S12W38	0	0	0			S12W38	Q	
						N05W28	0	0	0			N05W28	Q	
						S09W08	0	0	0			S09W08	Q	
						N12W06	0	0	0			N12W06	Q	
						S13E18	0	0	0			S13E18	Q	
						S21E27	0	0	0			S21E27	Q	
						N16E35	0	0	0			N16E35	Q	
						S16E45	4	0	0			S16E45	E	
						N15E46	1	0	0			N15E46	Q	
						N15E59	0	0	0			N15E59	Q	
						S08E68	0	0	0			S08E68	Q	
228	16	15	249	219	010	N10W91	0	0	0		16	N10W91	Q	SOLALERT
						S05W89	2	0	0			S05W89	Q	MAGNIL
						S17W81	0	0	0			S17W81	Q	
						S08W80	6	2	0			S08W80	A	
						S20W74	0	0	0			S20W74	Q	
						N25W53	0	0	0			N25W53	Q	
						S23W53	2	0	0			S23W53	Q	
						S08W21	0	0	0			S08W21	Q	
						S20E14	0	0	0			S20E14	Q	
						S15E31	1	0	0			S15E31	A	
						N16E32	0	0	0			N16E32	Q	
						S07E54	2	0	0			S07E54	Q	
						S02E72	0	0	0			S02E72	Q	
						S18E73	0	0	0			S18E73	Q	
229	17	16	236	219	008	S09W93	3	1	0		17	S09W93	E	SOLNIL
						S19W87	1	1	0			S19W87	Q	MAGQUIET
						S23W66	3	0	0			S23W66	Q	
						N25W64	1	0	0			N25W64	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

AUGUST 1981

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location	No. of Flares				Date	Location	Desc*	
						Lat-Long	Total	M	X			Lat-Long		
						S11W31	0	0	0			S11W31	Q	
						N09W19	0	0	0			N09W19	Q	
						S19W00	0	0	0			S19W00	Q	
						N15E12	0	0	0			N15E12	Q	
						S16E16	5	0	0			S16E16	A	
						S07E42	0	0	0			S07E42	E	
						S08E55	0	0	0			S08E55	Q	
						S03E60	5	0	0			S03E60	Q	
						S18E62	0	0	0			S18E62	Q	
						N13E82	1	0	0			N13E82	Q	
230	18	17	257	223	020	S23W78	1	0	0	Presto Sydney	18	S23W78	Q	SOLQUIET
						S10W45	1	0	0	17/0125Z SSC		S10W45	Q	MAGQUIET
						N10W31	0	0	0	17/0046Z		N10W31	Q	
						S20W13	0	0	0			S20W13	Q	
						N15W01	1	0	0			N15W01	Q	
						S16E04	7	0	0			S16E04	A	
						S16E15	0	0	0			S16E15	Q	
						S06E29	0	0	0			S06E29	E	
						S06E43	0	0	0			S06E43	Q	
						S01E45	2	0	0			S01E45	Q	
						S18E50	0	0	0			S18E50	E	
						N11E62	0	0	0			N11E62	Q	
						S07E51	0	0	0			S07E51	Q	
						S08E76	2	0	0			S08E76	Q	
231	19	18	242	238	024	S11W59	0	0	0		19	S11W59	Q	SOLQUIET
						N11W47	0	0	0			N11W47	Q	MAGQUIET
						S19W25	0	0	0			S19W25	Q	
						S16W10	7	0	0			S16W10	E	
						S07E16	1	0	0			S07E16	E	
						S05E30	0	0	0			S05E30	Q	
						S02E32	1	0	0			S02E32	Q	
						S17E33	4	0	0			S17E33	E	
						S07E38	1	0	0			S07E38	Q	
						N14E52	0	0	0			N14E52	Q	
						S09E65	3	0	0			S09E65	A	
232	20	19	269	245	011	S12W71	1	0	0		20	S12W71	Q	SOLQUIET
						N10W61	1	0	0			N10W61	Q	MAGQUIET
						S05W27	0	0	0			S05W27	Q	
						S14W23	5	0	0			S14W23	E	
						S07E02	0	0	0			S07E02	Q	
						S05E16	1	0	0			S05E16	Q	
						S02W19	2	0	0			S02E19	Q	
						S16E20	3	1	0			S16E20	E	
						S07E24	1	0	0			S07E24	Q	
						N11E38	0	0	0			N11E38	Q	
						S09E54	1	0	0			S09E54	E	
233	21	20	331	258	009	S12W84	0	0	0		21	S12W84	Q	SOLALERT
						N10W75	0	0	0			N10W75	Q	MAGQUIET
						S05W42	0	0	0			S05W42	Q	
						S15W37	10	0	0			S15W37	E	
						S13W11	2	0	0			S13W11	Q	
						S07W10	1	0	0			S07W10	Q	
						S06E01	0	0	0			S06E01	Q	
						N10E04	0	0	0			N10E04	Q	
						S02E06	2	0	0			S02E06	Q	
						S17E09	4	0	0			S17E09	E	
						S08E12	0	0	0			S08E12	Q	
						N10E24	2	0	0			N10E24	Q	
						N17E27	0	0	0			N17E27	Q	
						S10E43	1	0	0			S10E43	E	
						S08E68	1	0	0			S08E68	Q	
						N22E83	0	0	0			N22E83	Q	
234	22	21	295	261	010	N11W89	1	0	0	Presto Meudon Type	22	N11W89	Q	SOLALERT
						S15W51	16	1	0	IV Nancay 21/0828Z		S15W51	A	MAGQUIET
						S07W24	1	0	0	Presto Meudon		S07W24	Q	
						S06W13	0	0	0	Soflare S17E02		S06W13	Q	
						S02W08	0	0	0	21/1000Z In Progress		S02W08	Q	
						S17W06	2	1	0	Presto Toyokawa		S17W06	A	
						S09W01	0	0	0	21/0855Z Tenflare		S09W01	Q	
						N10E11	0	0	0	530 Flux Units		N10E11	Q	
						N17E14	0	0	0			N17E14	Q	
						S11E29	4	0	0			S11E29	E	
						N11E45	0	0	0			N11E45	Q	
						S08E54	4	0	0			S08E54	Q	
						N20E71	0	0	0			N20E71	Q	
						S07E72	0	0	0			S07E72	Q	
235	23	22	286	259	012	N08W65	0	0	0		23	N08W65	Q	SOLNIL
						S15W62	8	0	0			S15W62	A	MAGALERT MINOR
						S07W37	1	0	0			S07W37	Q	
						S05W30	0	0	0			S05W30	Q	
						S02W21	0	0	0			S02W21	Q	
						S17W18	6	0	0			S17W18	A	
						S09W12	0	0	0			S09W12	Q	
						N11W04	0	0	0			N11W04	Q	
						N18E00	0	0	0			N18E00	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

AUGUST 1981

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of obser-vation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
						S02E07	0	0	0			S02E07	Q	
						S10E17	2	0	0			S10E17	E	
						N12E31	0	0	0			N12E31	Q	
						S09E39	1	0	0			S09E39	Q	
						S06E55	1	0	0			S06E55	Q	
						N21E57	0	0	0			N21E57	Q	
						N16E75	0	0	0			N16E75	Q	
236	24	23	298	249	038	N09W81	0	0	0		24	N09W81	Q	SOLQUIET
						S14W74	5	0	0			S14W74	E	MAGALERT MINOR 24/XX
						S13W63	0	0	0			S13W63	Q	
						S02W35	0	0	0			S02W35	Q	
						S17W30	4	0	0			S17W30	E	
						S10W26	0	0	0			S10W26	Q	
						N11W17	0	0	0			N11W17	Q	
						S02W07	0	0	0			S02W07	Q	
						S11E03	2	0	0			S11E03	E	
						N12E17	0	0	0			N12E17	Q	
						S08E26	0	0	0			S08E26	Q	
						S05E41	0	0	0			S05E41	E	
						N20E45	1	0	0			N20E45	Q	
						S25E49	0	0	0			S25E49	Q	
						N15E67	2	0	0			N15E67	E	
237	25	24	297	248	024	S14W83	3	0	0		25	S14W83	E	SOLQUIET
						S02W48	0	0	0			S02W48	Q	MAGNIL
						S17W40	3	0	0			S17W40	E	
						N11W30	0	0	0			N11W30	Q	
						S22W25	0	0	0			S22W25	Q	
						S03W21	0	0	0			S03W21	Q	
						S11W08	5	0	0			S11W08	E	
						N12E04	1	0	0			N12E04	Q	
						S08E12	1	0	0			S08E12	Q	
						S05E28	1	0	0			S05E28	Q	
						N21E33	3	0	0			N21E33	E	
						S25E35	0	0	0			S25E35	Q	
						N16E56	4	0	0			N16E56	E	
						N14E74	0	0	0			N14E74	Q	
238	26	25	293	249	012	S03W62	0	0	0		26	S03W62	Q	SOLQUIET
						S17W59	0	0	0			S17W59	E	MAGQUIET
						S08W55	0	0	0			S08W55	Q	
						N11W45	1	0	0			N11W45	Q	
						S02W31	0	0	0			S02W31	Q	
						S12W20	7	0	0			S12W20	E	
						N12W11	0	0	0			N12W11	Q	
						S09W01	0	0	0			S09W01	Q	
						S05E14	3	0	0			S05E14	Q	
						N22E20	0	0	0			N22W20	E	
						N16E43	3	0	0			N16E43	E	
						N14E60	1	0	0			N14E60	Q	
239	27	26	311	268	007	S02W74	0	0	0		27	S02W74	Q	SOLQUIET
						S17W71	1	0	0			S17W71	E	MAGQUIET
						N11W58	4	0	0			N11W58	E	
						S17W44	0	0	0			S17W44	Q	
						S03W43	0	0	0			S03W43	Q	
						S12W34	10	1	0			S12W34	E	
						N12W25	1	0	0			N12W25	E	
						S09W13	1	0	0			S09W13	Q	
						S05E03	0	0	0			S05E03	Q	
						N21E07	5	0	0			N21E07	E	
						N16E28	1	0	0			N16E28	E	
						N15E50	0	0	0			N15E50	Q	
						S12E75	0	0	0			S12E75	Q	
240	28	27	345	255	023	S02W90	0	0	0	Presto Toyokawa	28	S02W90	Q	SOLALERT 28/30
						S16W90	0	0	0	Tenflare 140 Flux		S16W90	E	MAGQUIET
						N11W72	0	0	0	Units 27/0315Z		N11W72	E	
						S03W59	3	0	0	Duration 45 Minutes		S03W59	Q	
						S10W49	4	1	0	Presto Boulder		S10W49	A	
						N12W39	6	0	0	Soflare M9/2B S11		N12W39	E	
						S09W31	0	0	0	W40 27/0419Z		S09W31	Q	
						S06W11	2	0	0	Duration 30 Minutes		S06W11	Q	
						N21W06	0	0	0	Presto Boulder		N21W06	A	
						N16E15	6	0	0	Soflare M7/2B		N16E15	E	
						N16E34	0	0	0	S10E76 27/0556Z		N16E34	Q	
						S11E46	0	0	0	Duration 17 Minutes		S11E46	Q	
						S13E62	8	1	0			S13E62	A	
						N13E74	0	0	0			N13E74	Q	
241	29	28	369	270	014	N12W85	0	0	0		29	N12W85	E	SOLALERT 29/31
						S03W73	2	0	0			S03W73	Q	MAGALERT 29/30
						S10W60	2	0	0			S10W60	E	
						N12W53	7	1	0			N12W53	A	
						S09W45	2	1	0			S09W45	Q	
						S05W25	0	0	0			S05W25	Q	
						N20W19	0	0	0			N20W19	E	
						N15E02	3	0	0			N15E02	E	

ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

AUGUST 1981

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
						S12E10	0	0	0			S12E10	Q	
						N16E21	1	0	0			N16E21	Q	
						S11E32	0	0	0			S11E32	Q	
						S13E49	9	2	0			S13E49	A	
						N14E63	0	0	0			N14E63	Q	
						S08E70	0	0	0			S08E70	Q	
						N18E72	1	0	0			N18E72	Q	
242	30	29	345	249	016	S04W86	0	0	0	Presto Tenflare	30	S04W86	Q	SOLALERT 30/01
						S11W73	5	0	0	330 Flux Units		S11W73	P	MAGALERT 30/31
						N12W66	4	1	0	29/1949Z Duration		N12W66	A	
						S11W58	3	0	0	59 Minutes		S11W58	A	
						N21W43	1	0	0			N21W43	Q	
						S07W37	1	0	0			S07W37	Q	
						N15W12	1	0	0			N15W12	E	
						S12W05	0	0	0			S12W05	Q	
						N16E08	7	0	0			N16E08	Q	
						S22E19	0	0	0			S22E19	Q	
						S10E20	0	0	0			S10E20	Q	
						S10E22	0	0	0			S10E22	Q	
						S12E36	10	0	0			S12E36	A	
						N15E51	4	0	0			N15E51	Q	
						N18E57	0	0	0			N18E57	Q	
						S08E57	0	0	0			S08E57	E	
						S26E65	1	1	0			S26E65	Q	
						S10E83	1	1	0			S10E83	E	
						N12E83	0	0	0			N12E83	E	
243	31	30	347	224	016	S10W85	3	1	0	Presto Soflare	31	S10W85	A	SOLALERT 31/01
						N11W82	0	0	0	M1/2B N17W05		N11W82	Q	MAGNIL
						S10W73	4	0	0	30/1853Z DURATION		S10W73	Q	
						S07W50	0	0	0	20 Minutes.		S07W50	Q	
						N21W44	0	0	0			N21W44	Q	
						S07W40	0	0	0			S07W40	Q	
						N17W24	4	0	0			N17W24	E	
						N16W06	12	2	0			N16W06	Q	
						S21E06	0	0	0			S21E06	Q	
						S10E08	1	0	0			S10E08	Q	
						S12E22	4	0	0			S12E22	A	
						N15E37	6	0	0			N15E37	Q	
						S08E43	0	0	0			S08E43	Q	
						N18E44	0	0	0			N18E44	Q	
						S26E53	3	0	0			S26E53	Q	
						N06E66	0	0	0			N06E66	Q	
						N10E70	0	0	0			N10E70	Q	
						S10E70	13	3	0			S10E70	E	
						S18E75	0	0	0			S18E75	Q	
244	01	31	318	240	015	S09W87	1	1	0		01	S09W87	Q	SOLALERT 01
						S06W67	2	0	0			S06W67	Q	MAGQUIET
						N22W51	0	0	0			N22W51	Q	
						S06W56	0	0	0			S06W56	Q	
						N17W38	1	0	0			N17W38	E	
						S10W33	0	0	0			S10W33	Q	
						N16W20	6	0	0			N16W20	E	
						S09W06	0	0	0			S09W06	Q	
						S12E08	3	0	0			S12E08	E	
						N15E23	0	0	0			N15E23	E	
						S08E28	0	0	0			S08E28	Q	
						S26E37	1	0	0			S26E37	E	
						N18E47	0	0	0			N18E47	Q	
						N06E53	1	0	0			N06E53	Q	
						S17E63	1	0	0			S17E63	Q	
						S10E55	6	2	0			S10E55	E	
						N11E58	1	0	0			N11E58	Q	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

RELATIVE SUNSPOT NUMBERS

ZURICH, R_z

	1980 FINAL				1981 PROVISIONAL*							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	208	151	188	171	147	148	147	132	112	62	149	121
2	226	135	218	176	141	132	182	178	133	59	148	105
3	232	139	204	152	122	154	169	148	156	44	148	112
4	233	121	217	146	113	126	183	151	152	62	112	109
5	188	96	201	131	94	133	141	157	162	55	112	113
6	179	116	196	126	71	172	138	132	178	57	85	102
7	136	135	175	108	89	158	138	152	171	61	75	107
8	140	173	201	124	115	129	142	195	177	52	62	115
9	108	186	158	117	126	124	124	199	158	58	65	121
10	119	235	158	145	128	157	127	199	148	55	96	138
11	125	268	144	148	123	178	138	208	169	66	138	136
12	128	256	128	178	126	185	128	193	183	79	139	148
13	133	213	183	185	123	153	127	197	149	86	153	134
14	188	232	188	213	186	142	128	188	148	99	145	148
15	83	224	185	217	186	124	118	212	141	184	158	153
16	98	282	112	237	81	129	128	197	127	189	161	134
17	93	158	189	198	72	128	189	213	124	119	171	125
18	114	142	113	183	79	131	95	214	119	184	161	148
19	137	137	125	166	78	138	86	283	188	85	151	175
20	158	167	112	171	88	133	128	199	77	71	145	188
21	134	155	187	178	185	142	135	178	99	87	129	222
22	147	164	119	178	99	136	134	122	186	186	138	228
23	158	148	112	177	115	98	121	188	93	119	162	208
24	178	127	128	191	128	124	125	92	96	189	196	178
25	168	118	127	208	115	137	142	119	93	127	213	189
26	209	119	148	208	128	169	133	98	185	127	206	215
27	231	134	168	206	115	175	126	73	79	133	218	222
28	181	136	167	206	142	178	135	72	93	112	208	214
29	166	173	148	208	165		168	186	92	138	159	194
30	149	184	153	187	174		184	92	83	148	173	233
31		178		182	159		188		92		126	201
MEAN	155.8	164.7	147.9	174.4	114.4	143.5	133.8	156.2	126.8	89.8	144.2	158.2

1980 YEARLY MEAN = 154.6

*ZURICH R_z SUNSPOT NUMBER REPLACED BY INTERNATIONAL R_I SUNSPOT NUMBER BEGINNING WITH JANUARY 1981 DATA.

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1980				1981							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	213.2*	171.1	226.3	223.0	189.7	207.3	224.4*	210.8*	188.0	149.6	175.4	183.9
2	224.5*	167.9*	234.2	213.3	181.4	210.1	230.6*	211.2*	193.4	144.3	168.9	182.6
3	232.1	174.1	241.6	197.9	173.1	205.4*	238.9*	221.2	206.5*	134.9	163.3*	192.4
4	225.1	175.2	249.9*	199.4	166.8	197.5	245.6*	219.7	221.2	133.8	165.9	190.6*
5	215.6*	182.6	263.3*	186.4	161.8	187.8	227.3	226.2	237.5	136.0	152.5	178.8
6	210.9	185.3*	273.9*	171.8	157.4	185.4*	212.7	235.7	231.2	140.6	148.7	179.6
7	213.8	198.7*	272.7	176.4	168.6*	180.5*	201.4	242.3	234.2	146.7	149.8	173.8
8	208.9	212.1*	266.2*	169.3	169.2	179.1	200.6*	268.8*	222.4*	146.7*	152.4	178.4
9	189.7	223.4*	255.4*	175.1	167.8	176.7	202.9	287.7	218.6	152.8	150.8*	180.5
10	188.7	232.7	257.2*	180.5	164.6	185.2	203.1	268.8*	217.7*	157.1	156.5*	182.8
11	188.1	240.7	256.8*	203.5*	160.5	186.4*	199.7	272.1	228.1*	154.8	167.4	206.4
12	178.9	247.8*	233.2*	240.5*	156.6	190.6*	188.8	251.9	223.4	152.8	167.7*	209.8*
13	171.9	253.3*	226.8	244.2	158.1	197.8	202.1	254.9*	221.3	152.6	174.2*	208.7
14	163.4	251.1	218.8*	253.2	153.9	200.3	208.9	256.5*	232.5	159.1	184.2	208.2
15	153.8	237.8	205.2*	266.2	149.8	193.5	206.3*	254.9*	223.9	164.7	194.5*	225.1
16	159.6	214.9	191.1	273.8	152.5	186.9	194.9	247.5*	218.9	169.1	205.3*	221.8*
17	158.8	201.1	181.6*	254.8	155.3	188.1*	181.5	242.7	207.6	171.2	208.8*	228.7
18	154.4	200.6	174.9	255.1	161.8	190.2*	180.8	229.2	194.4	178.1	204.7*	244.1
19	160.1*	203.3	172.4	238.5	165.4	178.8	175.1	214.9	186.6*	165.9	220.3	254.6*
20	167.5	200.5	161.6	235.9*	159.9*	188.3	182.7	200.9*	188.8	159.8	234.7*	269.8
21	159.6	204.2	161.8	224.8	156.6	189.9*	189.5	196.1	188.4	153.6	228.1*	267.1*
22	178.6	205.3*	171.4	231.2	156.4	199.5	189.4*	191.5	169.3*	166.1*	235.9	262.2*
23	188.7*	196.1	167.2	226.8	156.8	217.9*	188.8*	204.9	159.6	171.2*	254.7*	254.8
24	191.3	192.5	174.9*	223.6	157.3	231.5*	191.4	203.8*	169.8	174.6	261.6*	258.9
25	183.8	182.9	176.4*	220.7	169.2*	233.8	199.3	203.8*	177.2	183.6	259.7	254.8
26	184.3	180.3*	189.6	220.1	174.6	238.5	198.6*	198.8	173.8	193.9	273.1*	272.9*
27	183.2*	177.2	185.3	220.3	175.8*	235.4	197.6	194.7*	177.8	193.4	255.8*	281.6*
28	185.2	178.2*	191.4	231.5*	197.2*	224.9*	203.7*	178.2*	181.3	191.6	223.6	275.3
29	178.2*	186.4	206.1*	217.2	204.2		212.4*	176.9	178.6	187.5*	213.3	259.1
30	174.1	201.8	216.3	209.9	209.1		208.2	175.3	164.6*	179.8	204.2*	265.1
31		211.5		199.8	209.1		214.8*		156.1		197.6	256.8*
MEAN	185.9	202.9	213.4	218.8	169.8	199.5	203.2	224.7	198.9	161.9	198.2	226.8

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

AUGUST 1981

DAY OF MONTH	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	PROVISIONAL SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.							
			R_I	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	213	3	121	135	178.5				183.9					
2	214	4	105	130	177.3	590	327	188	182.6	164	131	93	42	19
3	215	5	112	139	186.8				192.4		137	89	41	16
4	216	6	109	127	185.2*				190.6*		132	90	38	21
5	217	7	113	124	173.8	587	347	199	178.8	166	130	86	43	18
6	218	8	102	116	174.5	581	343	190	179.6	148	128	94	50	20
7	219	9	107	121	168.3	585	333	190	173.0	160	131	97	58	39
8	220	10	115	134	173.5	593	338	199	178.4	167	143	101	49	32
9	221	11	121	140	175.6	599	330	185	180.5	168	144	98	52	
10	222	12	138	145	177.2	588	333	193	182.0	174	151	102	43	17
11	223	13	136	133	201.0	600	363	209	206.4	187	158	107	50	18
12	224	14	140	137	203.5*	611	373	223	209.0*	198	163	103	41	17
13	225	15	134	155	203.4	612	364	217	208.7	192	157	107	46	17
14	226	16	140	137	202.9	608	366	221	208.2	189	159	110	54	14
15	227	17	153	151	219.4	605	373	230	225.1	204	168	119	51	22
16	228	18	134	118	216.4*				221.8*					
17	229	19	125	130	223.1	616	373	229	228.7	218	183	123	55	28
18	230	20	148	152	238.1	626	370	235	244.1	219	189	127	41	27
19	231	21	175	175	248.6*	613	374	251	254.6*	235	205	125	62	57
20	232	22	188	205	263.5				269.8					
21	233	23	222	231	261.1*	630	384	254	267.1*	254	221	133	65	21
22	234	24	220	230	256.3*	616	372	231	262.2*	238	214	124	50	17
23	235	25	200	212	249.3	624	372	230	254.8	231	206	136	57	24
24	236	26	178	225	253.3	613	380	233	258.9	240	210	122	46	17
25	237	27	189	215	249.3				254.8					
26	238	1	215	249	267.3*	627	384	252	272.9*	257	214	114	41	15
27	239	2	222	247	275.8*	640	406	265	281.6*	261	213	115	46	15
28	240	3	214	227	269.9	638	395	264	275.3	250	202	115	47	16
29	241	4	194	224	254.0	638	393	244	259.1	259	206	109	45	17
30	242	5	233	263	260.2	632	387	240	265.1	233	198	117	50	24
31	243	6	201	213	251.2*	630	396	247	256.0*	244	208	107	45	18
MEAN			158.2	172.3	220.6	612	367	224	226.0	210	174	110	48	22

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

	SUNSPOT NUMBERS						2800 MHz FLUX adjusted to 1 AU	
	Rz or R_I		Ra		Rs		Sa	
Date	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed	Monthly Mean	Smoothed
Sep 78	138.2	108	128.1	103	110.4	108	159.6	158
Oct	125.1	111	116.0	105	107.7	111	157.1	160
Nov	97.9	113	92.8	107	98.1	113	148.2	162
Dec	122.7	118	121.0	111	121.6	116	170.0	165
Jan 79	166.6	124	164.4	116	150.2	119	196.5	168
Feb	137.5	131	136.8	123	153.0	124	199.1	172
Mar	138.0	136	132.5	128	136.7	128	184.0	176
Apr	101.5	141	95.8	133	127.0	133	175.0	180
May	134.4	147	121.8	139	120.4	139	168.9	186
Jun	149.5	153	136.4	144	138.9	144	186.0	191
Jul	159.4	155	140.5	145	123.1	145	171.4	192
Aug	142.2	155	125.1	144	129.2	145	177.0	192
Sep	188.4	156	184.0	143	156.5	144	202.3	191
Oct	186.2	158	178.2	144	171.7	145	216.4	192
Nov	183.3	162	176.5	149	182.9	149	226.8	196
Dec	176.3	164	157.6	152	151.0	152	197.2	199
Jan 80	159.6	164	145.3	153	153.6	154	199.6	200
Feb	155.0	163	133.9	154	148.7	155	195.1	200
Mar	126.2	161	107.9	153	117.8	153	166.5	200
Apr	164.1	159	138.5	151	164.0	152	209.3	198
May	179.7	156	172.3	149	185.4	151	229.1	197
Jun	157.3	155	153.6	149	153.2	151	199.3	198
Jul	136.3	153*	136.0	144	144.1	151	190.8	197
Aug	135.4	150*	133.0	144	121.9	150	170.3	196
Sep	155.0	150*	150.0	146	138.8	152	185.9	198
Oct	164.7	150*	160.8	149	157.1	154	202.9	200
Nov	147.9	148*	149.9	149	168.5	153	213.4	199
Dec	174.4	142*	167.5	145	174.3	150	218.8	196
Jan 81	114.4†	140*	115.4	144	120.5	149	169.0	195
Feb	143.5†	141*	143.7	143	153.5	152	199.5	198
Mar	133.8†	139(+ 5)*	149.2	140	157.5	149	203.2	---
Apr	156.2†	135(±10)*	169.2	137	180.7	145	224.7	---
May	126.0†	133(±13)*	141.3	135	152.8	143	198.9	---
Jun	89.8†	131(±14)*	99.0	132	112.9	140	161.9	---
Jul	144.2†	129(±15)*	154.3	131	152.1	138	198.2	---
Aug	158.2†	128(±15)*	---	130	182.1	137	226.0	---
Sep	---	127(±15)*	---	129	---	136	---	---
Oct	---	126(±16)*	---	127	---	135	---	---
Nov	---	123(±17)*	---	124	---	131	---	---
Dec	---	119(±18)*	---	120	---	127	---	---
Jan 82	---	116(±18)*	---	117	---	123	---	---
Feb	---	113(±17)*	---	114	---	119	---	---

*An asterisk denotes either a value of the observed 12-month running mean or the predicted 12-month average that is based on preliminary observations of the Zurich and International relative sunspot numbers (R_Z and R_I). Parentheses enclose the 90% confidence limits. Shaded boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'. All tabulated entries of Ra are final values.

†R_I replaces R_Z as of January 1981.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

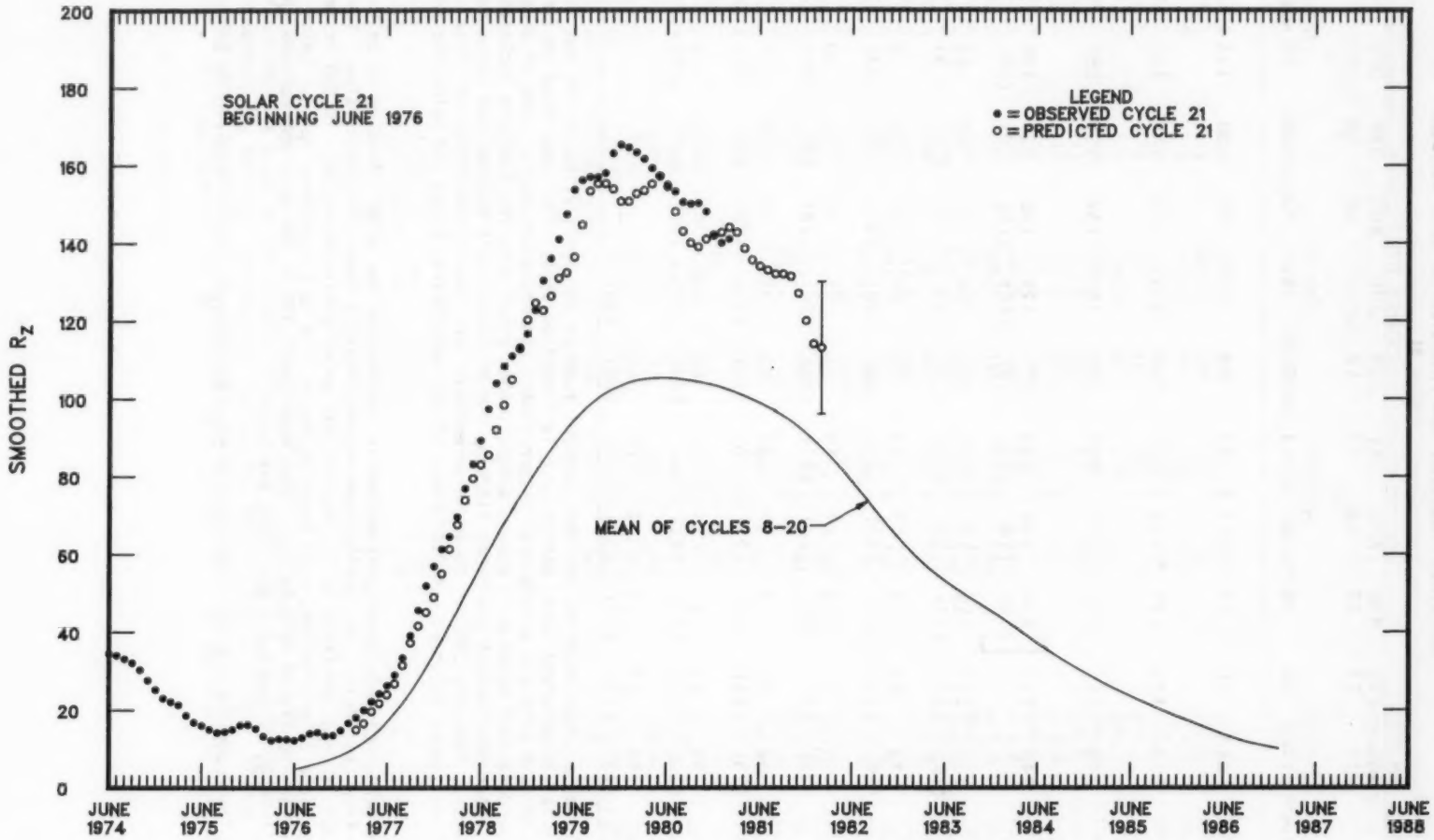
MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15	13	12	13	13	12	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	155	155	156	158	162	165*
1980	164	163	161	159	156	155	153	150	150	150	148	142
1981	140	141	139	135	133	131	129	128	127	126	123	119
			(5)	(10)	(13)	(14)	(15)	(15)	(15)	(16)	(17)	(18)
1982	116	113	110	108	105	102	98	94	89	84	81	78
	(18)	(17)	(16)	(15)	(13)	(12)	(11)	(9)	(10)	(9)	(9)	(9)
1983	74	71	69	67	64	62	60	59	58	57	57	56
	(10)	(12)	(13)	(15)	(17)	(19)	(20)	(22)	(23)	(24)	(25)	(25)
1984	55	53	50	47	45	44	43	42	40	39	37	36
	(26)	(25)	(25)	(26)	(27)	(28)	(28)	(28)	(28)	(26)	(26)	(25)
1985	34	34	33	32	31	30	29	28	27	26	25	24
	(25)	(24)	(23)	(23)	(23)	(22)	(21)	(20)	(20)	(21)	(21)	(22)
1986	24	23	22	20	19	17	16	15	14	14	13	13
	(22)	(22)	(22)	(21)	(21)	(20)	(19)	(18)	(17)	(16)	(15)	(13)
1987	13	13	14	14	15	16	17					
	(12)	(11)	(11)	(12)	(13)	(14)	(14)					

The table gives observed *smoothed* sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a left-hand bracket. They are based on final Zürich numbers through 1980 and provisional International numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1981 are included. The numbers after the bracket are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1981). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

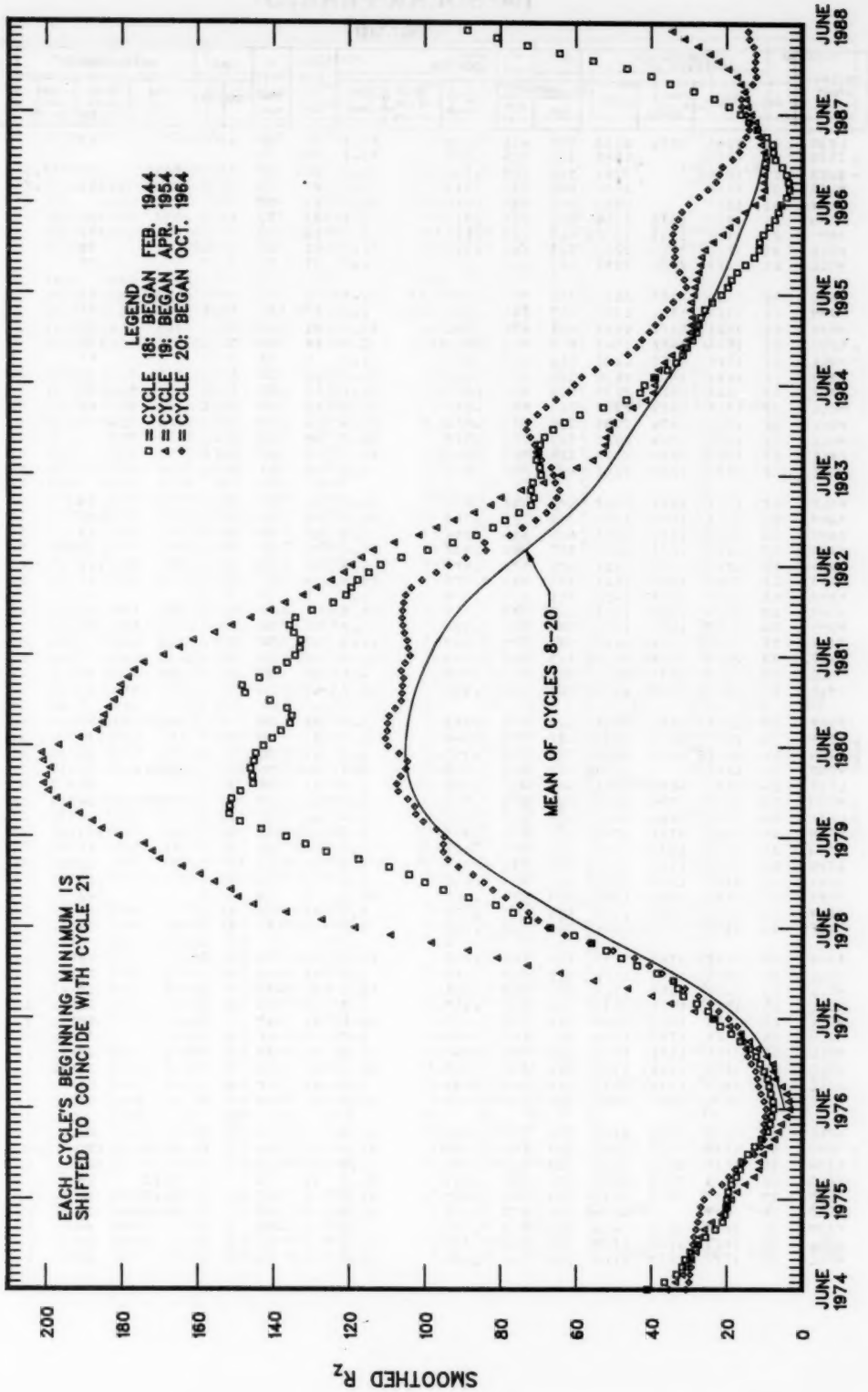
The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Furthermore, the method is very sensitive to the identification of a minimum epoch. In SGD issues 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Later studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we adopted a June 1976 minimum.

*MAXIMUM OF SUNSPOT CYCLE 21. The maximum smoothed sunspot number occurred in December 1979.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



Hα SOLAR FLARES

AUGUST 1981

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
LEAR	01	0045	0054	0103	S09	W61	.888		27.5	18	SF	3	C		23		
ISTA	01	0610E		0648	S06	W15	.326		31.1	380	1N						BU
BUCA	01	0615E		0700	S06	W20	.394		30.8	450	1F		C	0620	322	3.6	
BUCA	01	0710		0755	N15	E16	.313		2.5	45	SN		C	0720	161	1.7	
ISTA	01	0807		0818	S04	W80	.986		26.3	11	SF						AG
ATHN	01	1327	1330	1356	N15	E16	.313		2.8	29	SB	3	C		64		D
RAMY	01	1932	1939	13420	N13	E09	.138		2.5	100	1N	3	C		277		
HOLL	01	2201	2224	2252	S10	W56	.848		28.7	51	SF	3	C		39		
HOLL	01	2228	2230	2249	N17	E10	.257		2.7	21	SB	3	C		120		D
PALE	02	0104	0105	0113	S11	W57	.853		28.8	9	SF	3	C		22		
RAMY	02	1300E	1301	1357	N17	E01	.134		2.6	570	SN	3	C		39		
RAMY	02	1521	1521	1553	N21	W34	.591		31.1	32	SF	3	C		20		
RAMY	02	1524	1527	1542	N18	W02	.213		2.5	18	SN	3	C		131		
HOLL	02	1526	1527	1532	N18	W02	.213		2.5	6	SF	3	C		57		
RAMY	02	1620	1625	1630	S20	W71	.363		28.4	10	SF	3	C		26		
PALE	02	2012	2016	2029	N22	W36	.620		31.1	17	SF	3	C		36		D
HOLL	02	2026	2035	2037	S15	W67	.937		28.8	11	SN	3	C		66		
HOLL	02	2033	2034	2038	S19	W73	.970		28.4	5	SN	3	C		40		
HOLL	02	2153	2204	2223	S11	W75	.372		28.3	30	SN	3	C				
PALE	02	2203	2205	2208	S14	W70	.352		28.7	5	SF	3	C				
HOLL	02	2222	2222	2241	N23	W37	.271		2.4	19	SF	3	C		41		
PALE	03	0257	0259	0307	N21	W41	.675		31.0	10	SF	3	C		54		
RAMY	03	1121	1124	1129	S04	W71	.343		29.1	8	1F	3	C		106		
RAMY	03	1214	1218	1241	N15	W14	.284		2.5	27	SN	3	C		68		
RAMY	03	1228	1233	1241	S13	W81	.992		28.4	13	SF	3	C		19		
RAMY	03	1255	1310	1324	N11	E78	.975		9.4	29	SN	3	C		171		
RAMY	03	1402	1405	1411	S13	W81	.992		28.5	9	SF	3	C		11		
RAMY	03	1417	1420	1426	N11	E77	.971		9.4	9	SF	3	C		30		
RAMY	03	1424	1425	1428	N09	W78	.975		28.8	4	SF	3	C		11		
RAMY	03	1652	1657	1759	S03	E67	.924		8.7	67	SN	3	C		57		
PALE	03	1954E	1954U	2016	S10	E89	1.000		10.5	220	SF	3	C				
PALE	03	2019	2025U	20270	S10	E89	1.000		10.5	90	1N	3	C				
PALE	03	2030	2037	2046	N11	E76	.967		9.6	16	SF	3	C				
PALE	03	2341E	2343U	00240	S38	E84	.996		10.3	430	SN	3	C				
PUEB	04	0028	0105	0145	S09	E78	.982		9.9	80	1B		C	0105	129		H
LEAR	04	0647	0657	0738	S07	E70	.946		9.5	171	1B	3	C		130		
ATHN	04	0651E	0658	0708	S10	E72	.959		9.7	170	SB	2	C		80		
WEND	04	0656E		07230	S38	E72	.957		9.7	240	SN		C	0656	31		
LEAR	04	0659	0659	0711	N18	W27	.484		2.3	15	SF	3	C		38		
WEND	04	0815	0826	0844	N09	E70	.936		9.6	29	1N		C	0826	100		
LEAR	04	0815	0824	0855	N10	E68	.923		9.4	40	SF	3	C		96		
ATHN	04	0823	0827	08420	N09	E72	.958		9.7	190	1B	2	C		143		
ATHN	04	1023E	1027	1043	S10	E70	.948		9.7	230	SN	2	C		64		
ATHN	04	1108	1111	1149	S09	E71	.953		9.8	41	SB	2	C		80		
RAMY	04	1222	1223	12300	N13	W28	.503		2.4	90	1N	3	C		274		
RAMY	04	1245	1246	1249	N23	W55	.825		31.4	4	SN	3	C		42		
RAMY	04	1320	1349	1437	S09	E71	.953		9.9	77	1N	3	C				
PALE	04	1954E	1954U	20410	S08	E68	.935		9.9	470	SF	3	C		35		
ATHN	05	0740E	0742	0750	S38	E66	.923		10.3	100	SB	3	C		48		
HOLL	05	1341	1350	1428	S10	E57	.857		9.8	48	SN	3	C		78		
HOLL	05	1452	1453	1517	S10	E58	.866		10.0	25	SN	3	C		18		
HOLL	05	1518	1524	1530	S10	E57	.857		9.9	12	SN	3	C		36		
HOLL	05	1541	1543	1608	S10	E59	.874		10.1	27	SB	3	C		98		D
HOLL	05	1728	1729	1736	N13	E53	.794		9.7	8	SF	3	C		34		
HOLL	05	1805	1805	1839	S10	E56	.848		10.0	34	SN	3	C		17		
HOLL	05	1853	1914	1927	S10	E56	.848		10.0	34	SN	3	C		24		
HOLL	05	1928	1933	1933	S10	E55	.839		9.9	11	SF	3	C		21		
PALE	05	2034	2037	2048	S39	E55	.837		10.3	14	SF	3	C		31		
HOLL	06	0103	0104	0106	S06	E53	.812		10.0	3	SN	3	C		21		
WEND	06	0818	0823	0848	S03	E50	.783		10.1	30	SN		C	0823	120	1.3	
ATHN	06	0818	0822	0911	S08	E51	.796		10.2	53	1B	3	C		190		
WEND	06	0921	0923	0932	N24	W81	.983		31.3	11	SN		C	0923	25		
WEND	06	1017	1018	1022	N24	W81	.983		31.4	5	SF		C	1018	16		
WEND	06	1038		10440	N25	E75	.961		12.1	60	SF		C	1040	22		
RAMY	06	1633	1640	1644	S09	E43	.713		9.3	5	SN	3	C		38		
HOLL	06	1721	1721	1728	S08	E45	.732		10.1	7	SF	3	C		53		
HOLL	06	1737	1738	1743	S08	E47	.754		10.3	6	SN	3	C		22		

Hα SOLAR FLARES

AUGUST 1981

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mil. of Dsk	CORR. AREA Sq. Deg.	
HOLL	06	1818	1821	1824D	N17	W58	.845		2.4	60	SF	3	C		29		
BUCA	07	0740E		0800D	S08	E32	.572		9.7	20D	SF		P	0740	107	1.4	
ATHN	07	1314	1316	1325	S10	E24	.483		9.4	11	SB	3	C		127		
RAMY	07	1314	1318	1320	S13	E24	.509		9.4	6	SN	3	C		69		
RAMY	07	1404	1407	1504	S09	E31	.565		9.9	60	SF	3	C		70		
PALE	07	1902	1911	2220D	S10	E24	.483		9.6	198D	2B	3	C		859		
RAMY	07	1959E		2035D	S09	E26	.531		9.8	60	1N	3	C		349		
RAMY	08	1436	1440	1453	S24	W09	.522		7.9	17	SF	3	C		41		
HOLL	08	1520	1522	1538	S09	E24	.475		10.4	18	SF	3	C		47		
PALE	08	1807	1809	1818	S08	E23	.454		10.5	11	SF	3	C		43		D
PALE	08	2026	2027	2048	S13	E36	.344		9.3	22	SB	3	C		147		
PALE	08	2129E	2137U	2222D	S10	E20	.434		10.4	53D	SN	3	C		151		
LEAR	09	0146	0147	0150	N15	W27	.468		7.0	4	SF	3	C		31		
LEAR	09	0451	0508	0542	N14	W30	.507		7.0	51	SN	3	C		51		
PUPP	09	0622	0625	0638	S24	W19	.581		7.8	15	SN		C	0625	133	1.6	
ATHN	09	0622	0625	0642	S25	W16	.573		8.1	19	SN	3	C		111		
LEAR	09	0623	0625	0636	S24	W18	.574		7.3	13	SF	3	C		24		
ATHN	09	0632	0634	0647	S08	E05	.261		9.6	15	SB	3	C		32		
ATHN	09	0815	0818	0825	S08	E05	.261		9.7	10	SF	3	C		32		D
HOLL	09	1328	1332	1336	S23	W24	.609		7.8	8	SF	3	C		23		
HOLL	09	1501	1502	1534	S12	W05	.325		9.3	33	SB	3	C		31		
HOLL	09	1536	1537	1553	S09	E03	.305		10.3	27	SN	3	C		36		
HOLL	09	1951	1955	2013	N14	W40	.644		6.8	23	SF	3	C		70		
PALE	09	1953	1953	1957	S14	W07	.366		9.3	4	SF	4	C		30		
PALE	09	1954	2000	2002	N13	W40	.642		6.8	8	SF	4	C		20		
HOLL	09	2104	2106	2113	N16	W38	.622		7.0	9	SF	3	C		21		
PALE	10	0052	0053	0056	N15	W40	.645		7.0	4	SF	3	C		33		
LEAR	10	0052	0053	0100	N16	W39	.634		7.1	8	SN	3	C		26		
HOLL	10	0052	0053	0057	N16	W40	.647		7.0	5	SB	3	C		50		
ATHN	10	0632	0638U	0642	S12	W11	.364		9.4	9	SB	3	C		35		D
BUCA	10	0634E	0635	0643	S11	W15	.383		9.1	15D	1N		C	0635	268	3.0	
LEAR	10	0636E	0636U	0643	S13	W16	.423		9.1	70	SF	2	C		43		
PEKG	10	0657	0702	0705D	S11	W16	.400		9.1	80	1B		C	0702	273	3.1	EU
BUCA	10	0657	0658	0743	S13	W13	.395		9.3	46	2B		C	0658	820	8.5	
ATHN	10	0658	0703	0713	S12	W11	.364		9.5	15	1B	3	C		254		
LEAR	10	0659	0659	0728D	S13	W15	.414		9.2	29D	1B	3	C		352		
LEAR	10	0745	0746	0754	S12	W02	.317		10.2	9	SN	3	C		162		
BUCA	10	0747E		0757	S11	W02	.300		10.2	10D	SN		C	0747	107	1.2	
ATHN	10	0747	0748	0758	S04	W11	.260		9.5	3	SB	3	C		32		
RAMY	10	1615	1637	1645	S12	W05	.326		10.3	30	SN	3	C		121		
HOLL	10	1617	1637	1643	S14	W06	.362		10.2	26	SN	3	C		36		
HOLL	10	1803	1805	1902	S07	E55	.834		14.9	59	SN	3	C		47		
PALE	10	1806	1807	1852	S07	E56	.843		15.0	46	1F	3	C		150		
HOLL	10	1807	1808	1810	N11	W23	.394		9.0	3	SF	3	C		20		
LEAR	11	0038	0044	0125	S11	W16	.400		9.8	47	SF	3	C		113		
PALE	11	0144	0146	0209	S13	W24	.511		9.3	25	2B	3	C		512		
LEAR	11	0144	0146	0146D	S13	W25	.523		9.2	20	1B	3	C		411		
LEAR	11	0224	0233	0245D	S10	W16	.389		9.9	110	SF	3	C		104		
LEAR	11	0322	0324	0329	S25	W44	.800		7.8	7	SF	3	C		28		
LEAR	11	0440	0440	0443	S25	W46	.816		7.7	3	SF	3	C		30		
PEKG	11	0514	0531	0546	S10	E47	.762		14.7	32	SN		C	0531	105	1.7	U
PEKG	11	0635	0639	0642	S11	W30	.567		9.0	7	SF		C	0639	37	1.2	E
ISTA	11	0737		0810	S12	W15	.402		10.2	33	3B						F
LEAR	11	0741	0747	0839	S13	W16	.424		10.1	58	2B	3	C		977		
ATHN	11	0742	0748U	1115D	S10	W18	.444		10.6	213D	1B	3	C		293		
PEKG	11	0745E	0747	0820	S12	W17	.423		10.0	35D	2B		C	0747	652	7.4	FI
RAMY	11	1313	1448	1450D	S14	W32	.612		9.2	97D	1B	3	C		409		
ATHN	11	1333	1335	1345	S20	W10	.472		10.8	12	SB	3	C		130		
PALE	11	1810E	1811U	1818D	S11	W18	.422		10.4	8D	SF	3	C		57		D
HOLL	11	1811E	1844	1848D	S12	W29	.562		9.6	37D	SB	3	C		125		
HOLL	11	1858E	1858U	1923	S12	W20	.456		10.3	25D	SN	3	C		122		
PALE	12	0003	0005	0013	S12	W22	.479		10.4	10	SF	3	C		60		
PEKG	12	0043	0048	0123	S09	W31	.567		9.7	37	1N		C	0048	336	4.3	FI
LEAR	12	0044	0059	0213	S12	W29	.563		9.9	89	1N	3	C		240		
PALE	12	0103E	0103U	0149D	S10	W30	.561		9.8	46D	1F	3	C		284		D
PEKG	12	0219	0221	0251	S09	W30	.554		9.8	32	2B		C	0221	631	7.9	FIKT

Hα SOLAR FLARES

AUGUST 1981

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
					APPROX.		CENTRAL	HALE	CMP.								
	DAY	START	MAX. PHASE	END	LAT.	LONG. DIST.	DISTANCE	PLAGE REGION	DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
PEKG	12	0219	0235	0251	S13	W27	.523		10.1	32	2N		C	0235	547	6.6	FIT
LEAR	12	0221	0222	0223D	S11	W32	.592		9.7	2D	SB	3	C		159		
LEAR	12	0221	0234	0304	S10	W27	.523		10.1	43	1B	3	C		191		
LEAR	12	0311	0313	0318	S10	W27	.523		10.1	7	SN	3	C		56		
LEAR	12	0318	0323	0331	S16	E56	.864		16.3	13	SF	3	C		94		
PEKG	12	0348	0348	0433	S09	W26	.503		10.2	47	SN		C	0348	105	1.2	EKT
LEAR	12	0348	0347	0354	S11	W25	.506		10.3	9	SB	3	C		61		
PEKG	12	0348	0421	0433	S11	W34	.617		9.6	47	1N		C	0421	265	3.4	F
LEAR	12	0418	0422	0434	S13	W29	.570		10.0	16	SN	3	C		64		
LEAR	12	0444	0545	0553	S11	W26	.518		10.3	9	SN	3	C		26		
LEAR	12	0624	0626	0720	S10	W28	.534		10.2	56	1B	3	C		353		
ATHN	12	0624	0623U	0647	S10	W32	.638		11.5	23	1B	3	C		293		
PEKG	12	0625E	0626	0730	S03	W30	.554		10.0	650	2N		C	0626	518	6.4	F
PURP	12	0627		0652D	S09	W31	.567		9.9	250	2B		P	0642	553	7.5	
PEKG	12	0745	0747	0807	S09	W36	.630		9.6	22	1N		C	0747	315	4.2	FITU
HOLL	12	1447	1501	1518	S24	W64	.936		7.8	31	SN	3	C		40		
HOLL	12	1448	1443	1536	S11	W33	.676		9.7	48	SN	3	C		29		
HOLL	12	1509	1516	1514	N26	W06	.348		12.2	5	SF	3	C		38		
HOLL	12	1546	1606	1639	S06	W39	.654		9.7	53	SN	3	C		73		
HOLL	12	1649	1652	1657	S26	W75	.983		7.1	8	SN	3	C				
HOLL	12	1740	1740	1801	S12	W42	.715		9.6	81	1N	3	C		178		
HOLL	12	1804	1805	1809	S27	W87	1.000		6.3	5	SF	3	C				
HOLL	12	1951	1955	2009	S11	W39	.676		9.9	18	SN	3	C		22		
HOLL	12	2043	2116	2248	S10	W37	.648		10.1	125	2B	3	C		466		
PALE	12	2103	2110	2243	S11	W36	.641		10.2	100	1B	3	C		316		
HOLL	12	2225	2228	2256	S13	E75	.374		18.6	31	1B	3	C				
HOLL	12	2319	2326	2352	S18	E73	.970		18.4	33	SN	3	C				
HOLL	12	2348	2353	2359	S08	W41	.687		9.9	11	SN	3	C		34		
HOLL	13	0001	0003	0007D	S11	W41	.700		9.9	6D	SB	3	C		80		
PEKG	13	0003	0016	0030	S08	W44	.722		9.7	21	1B		C	0016	336	4.9	EF
PEKG	13	0203	0205	0213	N15	E27	.467		15.1	10	SN		C	0205	135	1.2	E
PEKG	13	0203E	0205	0238D	S05	W47	.747		9.8	50	2N		P	0205	421	6.5	FU
LEAR	13	0250	0257	0334	S11	W46	.755		9.7	44	1B	3	C		305		
PEKG	13	0255	0307	0307D	S03	W44	.726		9.8	12D	2B		P	0307	463	6.8	FIU
LEAR	13	0343	0345	0354	S12	W57	.863		8.9	11	SN	3	C		68		
WEND	13	0542E		0619	S16	E69	.953		18.4	27D	SF		C	0542	44		
WEND	13	0632	0638	0655	S08	W47	.755		9.7	23	SF		C	0638	113	1.7	
LEAR	13	0636	0644	0648	S11	W48	.776		9.7	12	SF	3	C		39		
WEND	13	0715	0721	0750	S08	W52	.807		9.4	35	1N		C	0721	138	2.3	
LEAR	13	0716	0717	0735	S11	W55	.843		9.2	19	SB	3	C		71		
ATHN	13	0720E	0722	0805	S08	W58	.863		9.0	45D	1B	3	C		190		
LEAR	13	0757	0809	0839	S10	W41	.695		10.3	42	1B	3	C		238		
ATHN	13	0803E	0806	0830	S08	W38	.651		10.5	27D	SB	3	C		190		
ATHN	13	1200E	1205	1213	S08	W38	.651		10.7	13D	SN	3	C		95		
ATHN	13	1200E	1205	1223	S15	E73	.954		18.8	23D	SN	3	C		95		
WEND	13	1219	1225	1250D	S08	W53	.817		9.5	31D	1F		C	1225	125	2.2	
ATHN	13	1336E	1339	1358	S08	W38	.651		10.7	22D	SB	3	C		127		
WEND	13	1353E		1438D	S08	W50	.787		9.8	33D	SF		C	1353	75	1.2	
HOLL	13	1424E	1434U	1437D	S12	W64	.915		8.8	13D	SN	2	C		40		
PALE	13	1805	1812	1816	S12	W53	.828		9.8	11	SF	3	C		32		
PALE	13	1934	1935	1939	S11	W52	.816		9.9	5	SF	3	C		27		
PALE	13	2142E	2142U	2148D	S13	W65	.924		9.0	6D	SF	3	C		45		
PALE	14	0142E	0143U	0145D	N25	W25	.503		12.2	3D	SF	3	C		169		D
PEKG	14	0523E	0523	0540	S09	W54	.829		10.2	20D	1B		C	0523	126	2.4	E
RAMY	14	1344	1347	1357	S20	E54	.860		18.6	13	SN	3	C		28		
RAMY	14	1425	1438	1442	S11	W72	.960		9.2	7	SF	3	C				
HOLL	14	1527E	1538U	1541	S09	W70	.948		9.4	4D	SF	2	C		17		
HOLL	14	1615	1626	1633	S17	E42	.743		17.8	18	SF	3	C		16		
HOLL	14	1636	1639	1647	S17	E53	.843		18.7	11	SF	3	C		23		
HOLL	14	2309	2316	0007	S08	W64	.910		10.2	58	1N	3	C		193		
LEAR	15	0128	0139	0211	S11	W76	.977		9.4	33	SN	3	C				
LEAR	15	0408	0408	0412	S06	W74	.966		9.6	4	SF	3	C				
ATHN	15	1120E	1130	1207	S10	W78	.983		9.6	47D	1B	3	C		159		
RAMY	15	1512	1517	1537	S26	W47	.830		12.1	25	SF	3	C		30		
RAMY	15	1527	1533	1548	S13	W74	.971		10.1	11	SF	3	C				
RAMY	15	1527	1539	1540	S07	E66	.922		20.6	3	SF	3	C		16		
HOLL	15	1537	1540	1546	S12	W73	.966		10.2	9	SF	3	C				
RAMY	15	1647	1654	1701	N15	E47	.729		13.2	14	SF	3	C		23		
RAMY	15	1704	1714	1750	S26	W48	.837		12.1	46	SF	3	C		95		

Hα SOLAR FLARES

AUGUST 1981

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY			CONF.	TYPE	TIME — UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
HOLL	15	1710	1716U	1729D	S25	W49	.840		12.0	190	SF	3	C		48		
LEAR	16	0501	0529	0613	S17	E32	.636		18.6	72	SB	3	C		179		
LEAR	16	0903	0903	0912	S08	W81	.390		10.3	9	SF	3	C				
RAMY	16	1124	1143	1144	S18	E27	.592		18.5	20	SF	3	C		27		
RAMY	16	1212	1219	1233	N13	E84	.992		22.8	18	SF	3	C				
RAMY	16	1224	1226	1230	S16	E28	.585		18.6	6	SF	3	C		23		
RAMY	16	1230	1233	1236	S06	E72	.956		21.9	6	SF	3	C				
RAMY	16	1310	1314	1313	S11	W84	.997		10.2	3	SF	3	C				
RAMY	16	1321	1323	1329	S36	E72	.956		22.3	8	SF	3	C				
HOLL	16	1613	1622	1642	N23	W60	.865		12.2	29	SF	3	C		49		
RAMY	16	1614	1620	1632	N25	W58	.850		12.3	18	SF	3	C		32		
RAMY	16	1613	1613	1627	S15	E22	.511		18.3	9	SF	3	C		27		
RAMY	16	1651	1652	1654	S07	E68	.935		21.8	3	SF	3	C		21		
RAMY	16	1728	1729	1732	S22	W82	.996		10.6	4	SN	3	C				
RAMY	16	1921	1939	2139	S15	E22	.511		18.5	138	SN	3	C		152		
HOLL	16	1934	1937	2014	S15	E22	.511		18.5	40	SN	3	C		78		
LEAR	16	2343	2351	2351D	S23	W65	.940		12.1	20	1N	3	C		241		
LEAR	17	0206	0230	0217	N26	W63	.890		12.4	11	SF	3	C		17		
LEAR	17	0225	0225	0231	N14	E28	.477		19.2	6	SF	3	C		34		
LEAR	17	0339E	0341	0343	S13	E18	.513		18.5	40	SF	3	C		24		
LEAR	17	0352	0354	0357	S14	E17	.450		18.4	5	SF	3	C		22		
LEAR	17	0419	0427	0436	S19	E18	.519		18.5	17	SF	3	C		30		
LEAR	17	0428	0542	0600	S15	E17	.462		18.5	82	SN	3	C		99		
PEKG	17	0450	0453	0520	S16	E61	.903		21.8	30	SN		C	0453	34	.9	D
PEKG	17	0520	0544	0610	S17	E16	.477		18.4	50	1N		C	0544	210	2.4	EU
PEKG	17	0646E	0646	0700	S09	E37	.644		20.1	140	SN		C	0646	135	1.4	EU
RAMY	17	1120	1126	1155	S32	E54	.815		21.5	35	SF	3	C		79		
RAMY	17	1202	1202	1210	S19	E14	.488		18.6	8	SF	3	C		41		
RAMY	17	1244	1245	1255	S25	W72	.374		12.1	11	SF	3	C				
RAMY	17	1318	1333	1403	S18	E14	.474		18.6	45	SF	3	C		33		
HOLL	17	1400	1421	1436	S33	E50	.775		21.3	36	SF	3	C		33		
RAMY	17	1401	1407	1412	S11	W39	.678		14.7	11	SF	3	C		26		
RAMY	17	1414	1415	1420	S05	E80	.987		23.6	6	SN	3	C				
RAMY	17	1508	1524	1535	S05	E84	.996		23.9	27	SF	3	C				
RAMY	17	1554	1554	1559	S14	E19	.470		19.1	5	SN	3	C		45		
PEKG	17	2326	2333	2331	S19	E37	.448		18.5	5	SN		C	2330	50	.6	E
LEAR	18	0043	0101	0135	S21	E08	.483		18.6	52	SF	3	C		53		
PEKG	18	0045E	0045	00450	S20	E07	.464		18.6		SN		C	0045	42	.5	E
PALE	18	0054	0056	0110	S20	E08	.468		18.6	16	SF	3	C		44		D
LEAR	18	0159	0214	0237	S16	E06	.399		18.5	38	SF	3	C		122		
PALE	18	0210	0212	0223	S14	E05	.364		18.5	13	SF	3	C		43		D
PEKG	18	0320	0330	0339	S15	E06	.384		18.6	13	SF		C	0330	59	.6	E
PEKG	18	0350	0355	0400	S14	W09	.384		17.5	10	SN		C	0355	38	.4	E
LEAR	18	0506	0509	0517	S39	E51	.801		22.3	11	SN	3	C		50		
LEAR	18	0510	0512	0521	S07	E78	.982		24.1	11	SN	3	C				
BUCA	18	0640	0643	0652	S13	W09	.370		17.6	12	SB		C	0643	107	1.2	D
LEAR	18	0640	0644	0653	S15	W09	.393		17.6	13	SN	3	C		108		
WENC	18	0640	0641	0650	S14	W09	.384		17.6	10	SN		C	0641	25	.3	H
ATHN	18	0645	0647	0654	S15	W06	.384		17.8	9	SB	3	C		64		D
WENC	18	0706	0719	0751	S13	E31	.596		20.6	45	1N		C	0719	188	2.3	
LEAR	18	0709	0714	0811	S12	E31	.589		20.6	62	SN	3	C		155		
BUCA	18	0711E		07370	S11	E31	.582		20.6	260	1N		C	0713	322	4.1	E
ATHN	18	0732	0736	0805	S13	E35	.643		20.9	33	SB	3	C		143		
RAMY	18	1112	1130	1147	S17	E42	.741		21.6	35	1F	3	C		170		
ATHN	18	1117	1121	11230	S15	W06	.384		18.0	60	SB	3	C		95		D
ATHN	18	1206	1209	1218	S18	E45	.775		21.9	12	SN	3	C		80		D
RAMY	18	1208	1208	1218	S17	E42	.741		21.7	10	SN	3	C		29		
RAMY	18	1359	1401	1419	S17	E40	.721		21.6	20	SN	3	C		20		
RAMY	18	1434	1435	1501	S02	E37	.615		21.4	27	SN	3	C		71		
RAMY	18	1615	1617	1622	S05	E68	.933		23.8	7	SN	3	C		47		
HOLL	18	1650	1650	1656	S17	E33	.711		21.6	6	SN	3	C		22		
HOLL	18	2012	2013	2020	S13	W17	.438		17.6	8	SN	3	C		49		
PALE	18	2013	2015	2024	S15	W16	.453		17.8	11	SN	3	C		60		
HOLL	18	2116	2123	21430	S15	W12	.420		18.0	270	SF	3	C		82		
PALE	18	2126	2127	2133	S17	W16	.478		17.7	7	SF	3	C		40		
HOLL	18	2230	2239	2301	S17	E36	.679		21.6	23	SF	3	C		35		
LEAR	18	2355	2359	0010	S03	E15	.337		20.1	15	SF	3	C		22		
PEKG	18	2358E	2358	2409	S04	E15	.316		20.1	110	SF		P	2358	17	.2	E

Hα SOLAR FLARES

AUGUST 1981

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	19	0043	0046	0056	S13	E30	.585		21.3	13	SF	2	C		28		
LEAR	19	0045	0046	0056	S14	E30	.592		21.3	11	SF	3	C		23		
PALE	19	0318E	0332U	0353	S17	W18	.496		17.8	350	SF	2	C		92		
PEKG	19	0320E	0334	0340	S15	W21	.502		17.6	200	SN		C	0334	71	.8	E
PEKG	19	0328	0333	0357	S17	W15	.470		18.0	23	SF		F	0333	42	.5	D
LEAR	19	0531	0531	0555	S13	W61	.897		14.7	24	SF	3	C		19		
LEAR	19	0627	0629	0644	S07	E64	.909		24.1	17	SF	3	C		32		
WEND	19	0819	0821	0831	S00	E26	.451		21.3	16	SN		C	0821	50	.6	
LEAR	19	0816	0818	0837	S00	E27	.466		21.4	21	SN	3	C		47		
WEND	19	0302	0303	0308	S15	W22	.513		17.7	6	SF		C	0303	28	.3	
ATHN	19	1245	1253	1404	S16	E28	.586		21.6	79	1B	3	C		350		
WEND	19	1250	1300	1310D	S15	E23	.523		21.3	20D	1N		C	1300	236	2.7	
HOLL	19	1329E	1331U	1625	S15	E24	.534		21.4	176D	1N	1	C		306		
HOLL	19	1418	1439	1458	S01	E25	.441		21.5	32	SF	3	C		44		
HOLL	19	1436	1442	1456	S07	E24	.464		21.4	20	SF	3	C		39		
HOLL	19	1444	1447	1451	N13	W56	.823		15.4	7	SF	3	C		16		
HOLL	19	1459	1502	1511	S13	E38	.677		22.5	12	SF	3	C		24		
HOLL	19	1550	1552	1613	S17	W26	.574		17.7	23	SB	3	C		59		
HOLL	19	1919	1922	1948	S17	W18	.436		18.5	29	SN	3	C		102		
HOLL	19	2305	2024	2039	S18	W17	.499		18.6	34	SF	3	C		38		
HOLL	19	2356	2356	0005	S03	E16	.321		21.2	9	SF	2	C		24		
LEAR	20	0014E	0015U	0100	S14	W23	.514		18.3	46D	2N	3	C		494		
PALE	20	0020E	0022U	0106D	S15	W21	.503		18.4	46D	SF	1	C		141		D
LEAR	20	0226	0227	0244	N09	E37	.598		22.9	18	SB	3	C		92		
PALE	20	0226	0227	0244D	N10	E36	.584		22.8	18D	SN	3	C		81		
PEKG	20	0415	0425	0430	S15	W14	.437		19.1	15	SN		P	0425	92	1.0	E
LEAR	20	0415	0418	0445	S17	E13	.505		21.6	30	SF	3	C		105		
PEKG	20	0424	0425	0427	S17	W36	.680		17.5	3	SN		C	0425	46	.6	E
PEKG	20	0424	0425	0433	S15	E18	.473		21.5	6	SN		C	0425	101	1.2	E
PEKG	20	0612	0618	0621D	S19	W45	.781		16.9	9D	SN		P	0618	21	.4	D
PEKG	20	0616E	0616	0618D	N10	E36	.594		23.0	2D	SF		P	0616	50	.6	E
LEAR	20	0717	0726	0803	S17	E13	.505		21.7	52	SF	3	C		42		
PEKG	20	0725	0727	0753	S17	E19	.505		21.7	25	SN		C	0727	34	.4	E
ATHN	20	1042E	1045U	1055	S18	W25	.574		18.6	13D	SB	3	C		64		
HOLL	20	1410	1410	1435	S14	W38	.683		17.7	25	SN	3	C		21		
HOLL	20	1443	1458	1505	S15	W30	.600		18.4	16	SN	3	C		66		
HOLL	20	1542	1548	1552	S14	W38	.683		17.8	10	SB	3	C		50		
HOLL	20	1554	1555	1557D	S17	W28	.595		18.6	3D	SB	3	C		79		
HOLL	20	1734	1735	1745	S08	E48	.767		24.3	11	SF	3	C		39		
HOLL	20	1801	1806	1823	N02	E03	.177		21.4	20	SF	3	C		46		
HOLL	20	1811	1848	1922	S16	E11	.428		21.6	71	1B	3	C		263		
HOLL	20	1914	1915	1923	S17	W36	.680		18.1	6	SB	3	C		48		
HOLL	20	1916	1917	1923	S14	W04	.362		20.5	7	SF	3	C		31		
HOLL	20	1943	1948	1956	S17	W31	.627		18.5	13	SN	3	C		54		
HOLL	20	2013	2014	2025	S17	W30	.616		18.6	12	SN	3	C		53		
HOLL	20	2032	2034	2106	N03	E08	.154		21.5	34	1N	3	C		231		
LEAR	21	0000	0002	0012	S08	E68	.936		26.1	12	SF	3	C		30		
PEKG	21	0015	0016	0019	S13	E51	.813		24.8	4	SN		C	0016	34	.6	D
PEKG	21	0013	0020	0024	S08	E69	.936		26.1	5	SB		C	0020	55		D
LEAR	21	0019	0020	0040	S08	E69	.936		26.1	21	SF	3	C		54		
PEKG	21	0350	0355	0402	S08	E68	.936		26.1	12	SF		C	0355	13		D
PEKG	21	0151	0201	0209D	N10	W78	.975		15.2	18D	SN		P	0201	92		E
LEAR	21	0157	0214	0247	S15	W37	.678		18.3	50	1B	3	C		237		
PEKG	21	0200	0201	0206	S13	W33	.683		18.2	6	SN		C	0201	84	1.2	E
PALE	21	0212	0214	0227	S13	W38	.678		18.2	15	SN	3	C		123		
LEAR	21	0257	0259	0307	S07	E36	.623		23.8	10	SF	3	C		52		
LEAR	21	0421	0435	0440	S13	W41	.711		18.1	9	SB	3	C		104		
PEKG	21	0432	0435	0440	S11	W42	.713		18.0	9	1N		C	0435	168	2.5	D
LEAR	21	0451	0451	0454	S16	W39	.706		19.3	3	SF	3	C		39		
LEAR	21	0453	0453	0457D	S08	E68	.936		26.3	4D	SF	3	C		40		
LEAR	21	0531	0531	0535	S14	W45	.758		17.9	4	SN	3	C		20		
LEAR	21	0548	0626	0706	S17	E05	.413		21.6	79	1B	3	C		239		
LEAR	21	0605	0608	0625	S12	W41	.706		18.2	20	SN	3	C		140		
PEKG	21	0607	0609	0612	S11	W41	.732		18.2	5	SN		C	0609	135	1.5	E
PEKG	21	0609	0628U	0652	S17	E 3	.408		21.5	43	1B		C	0628	336	3.4	F
ATHN	21	0624E	0626U	0656	S17	E06	.417		21.7	32D	SB	3	C		130		
LEAR	21	0627	0623	0645	S03	E37	.645		24.0	19	SF	3	C		31		
PEKG	21	0628	0630	0631	S13	E48	.784		24.9	3	SN		C	0630	59	.9	D
LEAR	21	0628	0629	0638	S08	E67	.933		26.3	10	SF	3	C		44		
LEAR	21	0657	0706	0723	S07	E34	.597		23.8	26	SF	3	C		62		

Hα SOLAR FLARES

AUGUST 1981

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. LONG. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY			COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BUCA	21	0701		0710	S06	E34	.532		23.8	9	SF		C	0703	54	.7	
LEAR	21	0801	0807	0820	S13	W43	.733		18.1	19	SN	3	C		28		
PEKG	21	0813E	0815	0816	S11	W43	.724		18.1	3U	SB		P	0815	42	.6	D
LEAR	21	0826	0831	0941D	S16	E02	.390		21.5	750	2B	3	C		528		
PEKG	21	0828	0842	0930	S14	E00	.357		21.4	62	2B		C	0842	631	7.0	FU
ATHN	21	0828	0851	0929	S17	E03	.408		21.6	61	1B	3	C		445		
ATHN	21	1209	1211	1219	S08	E32	.577		23.9	1J	SB	3	C		32		D
HOLL	21	1322E	1322U	1328	S13	W46	.764		18.1	8D	SN	3	C		22		
HOLL	21	1418	1428	1442	S15	W45	.762		18.2	24	SB	3	C		84		D
HOLL	21	1434	1435	1454	S14	W17	.452		20.3	20	SN	3	C		68		
HOLL	21	1443	1456	1524	S13	W46	.764		18.2	41	1N	3	C		171		
HOLL	21	1446	1449	1539	N11	W82	.987		15.5	21	SF	3	C				
HOLL	21	1544	1547	1552	S08	W45	.735		18.3	9	SF	3	C		27		
HOLL	21	1609	1628	1637	S15	W51	.820		17.8	28	SB	3	C		30		
HOLL	21	1609	1617	1621	S16	W46	.777		18.2	12	SN	3	C		86		
HOLL	21	1713	1724	1758	S14	W46	.768		18.3	45	1B	3	C		224		D
HOLL	21	1818	1819	1828	S12	W46	.760		18.3	12	SN	3	C		66		
HOLL	21	2018	2030	2050	S13	W50	.804		18.1	32	1N	3	C		190		
PALE	21	2025	2027	2045	S14	W48	.788		18.3	20	SN	3	C		87		
PALE	21	2132	2132	2203	S16	W48	.796		18.3	31	SF	3	C		66		
LEAR	22	0116E	0116U	0125	S14	W21	.493		20.5	9D	SN	3	C		98		
LEAR	22	0203	0215	0255	S18	W05	.429		21.7	52	SN	3	C		134		
PEKG	22	0207	0214	0230	S15	W03	.402		21.4	23	SF		C	0214	55	.6	E
PEKG	22	0240	0246	0248D	S14	W59	.884		17.7	8D	SF		P	0246	38	.7	D
LEAR	22	0245	0247	0250	S17	W57	.876		17.8	5	SN	3	C		18		
LEAR	22	0417	0419	0422	S14	W53	.835		18.2	5	SF	3	C		27		
LEAR	22	0515	0524	0608	S17	W07	.421		21.7	53	1N	3	C		222		
LEAR	22	0611	0612	0614	S16	W53	.841		18.3	3	SF	3	C		49		
BUCA	22	0655		0730	S16	W60	.896		17.8	5	1N		P	0658	107	2.3	D
LEAR	22	0658	0658	0705	S16	W60	.896		17.8	7	SB	3	C		95		D
ATHN	22	0700	0703	0707	S13	W60	.890		17.8	7	SB	2	C		48		D
BUCA	22	0734		0745	S12	E27	.542		24.3	11	1N		C	0735	215	2.6	
ATHN	22	0737	0739	0745	S05	E22	.422		24.0	8	SB	2	C		95		D
BUCA	22	0750		0800	S02	E17	.328		23.6	10	SF		C	0754	107	1.2	
PEKG	22	0751	0805	0815	S03	E18	.351		23.7	24	SN		P	0805	50	.5	E
WEND	22	0901	0907	0920	S13	E33	.621		24.3	13	SF		C	0907	25	.3	
LEAR	22	0903	0907	0913	S12	E33	.614		24.3	16	SN	3	C		23		
PEKG	22	0910	0912	0914D	S12	E33	.614		24.9	40	SN		P	0912	34	.4	E
WEND	22	0949E		0954D	S15	W11	.415		21.6	5D	SF		C	0949	56	.6	
WEND	22	1027E	1033	1056D	S17	W07	.421		21.9	290	SN		C	1033	138	1.5	E
ATHN	22	1155	1158	1205	S13	W10	.465		21.7	10	SB	2	C		80		D
HOLL	22	1345	1347	1416	S20	W10	.480		21.8	31	SN	3	C		55		
HOLL	22	1427	1427	1434	S04	E42	.686		25.8	7	SF	3	C		20		
WEND	22	1433E	1443	1447	S15	W63	.915		17.9	14D	SF		C	1443	38	.9	
HOLL	22	1438	1444	1448	S16	W63	.917		17.9	10	SN	3	C		52		
HOLL	22	1450	1456	1537	S06	E64	.307		27.4	47	1N	3	C		146		
WEND	22	1453	1457	1527	S05	E62	.891		27.3	34	SF		C	1457	69	1.5	
HOLL	22	1526	1527	1544	S15	W59	.887		18.2	18	SF	3	C		35		
HOLL	22	1639	1643	1648	S15	W60	.894		18.2	9	SF	3	C		41		
HOLL	22	1643	1643	1738	S13	W16	.430		21.5	55	SN	3	C		54		
PALE	22	1755E	1755U	1807	S18	W15	.485		21.6	120	SF	3	C		75		
HOLL	22	1757	1757	1807	S13	W16	.433		21.5	13	SF	3	C		103		
HOLL	22	1800	1813	1826	S15	W60	.894		18.3	26	SN	3	C		55		
PALE	22	1812	1813	1825	S17	W60	.898		18.3	13	SF	3	C		32		
HOLL	23	0009	0016	0043	S17	W18	.498		21.7	34	SN	3	C		75		
LEAR	23	0012	0015	0043	S17	W18	.498		21.7	31	SF	3	C		62		
LEAR	23	0140	0141	0147	S15	W62	.908		18.4	7	SF	3	C		26		
LEAR	23	0225	0230	0244	S17	W19	.507		21.7	15	SN	3	C		65		
PEKG	23	0230	0234	0240	S13	W23	.505		21.4	10	SN		C	0234	105	1.2	E
PEKG	23	0302E	0302	0302D	N22	E57	.837		27.4		SN		P	0302	13	.2	D
LEAR	23	0729	0739	0754	S12	W65	.923		18.4	25	SN	3	C		119		
LEAR	23	0912	0912	0922	S15	W66	.933		18.4	10	SF	3	C		11		
HOLL	23	1603	1604	1613	N21	E51	.773		27.5	10	SN	3	C		32		
PALE	23	1743	1748	1800D	N18	E64	.832		28.5	17D	SF	3	C		53		
HOLL	23	1744	1751	1833	N19	E54	.807		27.8	49	1N	3	C		145		
PALE	23	1821	1823	1841	S09	E09	.314		24.4	20	SF	3	C		72		D
HOLL	23	1831	1832	1856	S09	E08	.306		24.4	25	SF	3	C		106		
HOLL	23	1855	1900	1908	S13	W62	.916		13.1	13	SF	3	C		34		
HOLL	23	1923	1935	1946	S16	W29	.598		21.6	13	SN	3	C		65		
PALE	23	1934	1936	1942	S17	W29	.607		21.6	8	SF	3	C		44		

Hα SOLAR FLARES

AUGUST 1981

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY			COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	23	2000	2005	2013	S14	W65	.326		19.0	13	SF	3	C		23		
HOLL	23	2008	2009	2014	S16	W30	.603		21.6	6	SF	3	C		30		
HOLL	23	2114	2119	2215	S30	E07	.299		24.4	61	1N	3	C		245		
HOLL	23	2142	2145	2154	N16	E73	.950		29.4	12	SN	3	C		21		
HOLL	24	0016	0018	00440	S17	W32	.633		21.6	280	SN	3	C		36		
LEAR	24	0018	0019	0038	S17	W30	.618		21.8	20	SF	3	C		66		
LEAR	24	0105	0106	0131	S10	E04	.333		24.3	26	SF	3	C		49		
LEAR	24	0128	0137	0143	S14	W67	.938		19.0	15	SN	3	C		35		
LEAR	24	0136	0149	0235	S09	E02	.278		24.2	53	1F	3	C		300		
PALE	24	0137E	01555U	02250	S09	E04	.284		24.4	480	1F	3	C		348		D
LEAR	24	0216	0218	0226	S14	W72	.963		18.7	10	SF	3	C		23		
ATHN	24	1020	1022	1358	N18	E69	.927		29.6	39	SB	2	C		64		D
ATHN	24	1229	1231	1238	N15	E60	.860		29.0	9	SB	2	C		48		D
HOLL	24	1522	1536	1546	S18	W33	.718		21.7	24	SF	3	C		27		
HOLL	24	1727	1727	1736	S15	W72	.364		13.3	9	SF	3	C				
HOLL	24	1740	1742	1752	S10	W07	.315		24.2	12	SN	3	C		42		
HOLL	24	1814	1815	1824	S07	E14	.338		25.8	10	SF	3	C		20		
HOLL	24	1821	1821	1830	N20	E42	.706		27.9	9	SF	3	C		52		
HOLL	24	1914	1918	1924	S13	W42	.723		21.7	10	SF	3	C		20		
HOLL	24	2023	2025	2035	N16	E59	.951		29.3	12	SF	3	C		31		
WEND	25	0735E		07570	S12	W14	.400		24.3	220	SF		C	0744	131	1.4	E
PALE	25	1827E	1831	1909	S16	W27	.578		23.7	420	SF	3	C		26		
PALE	25	1903	1921	1932	N17	E44	.636		23.1	29	SF	3	C		21		
PALE	25	1945	1956	2027	S10	W17	.407		24.5	42	SF	3	C		44		
HOLL	25	1954	1955	2012	N15	E48	.740		29.4	18	SN	3	C		29		
PALE	25	1954	1955	2005	N15	E47	.728		29.4	11	SF	3	C		44		
HOLL	25	2144	2145	2205	S04	E13	.374		27.3	21	SF	3	C		33		
LEAR	26	0026	0030	0036	N20	E21	.409		27.6	13	SF	3	C		49		
HOLL	26	0045	0045	00510	S09	W22	.457		24.4	60	SB	3	C		41		
LEAR	26	0323	0335	0353	N21	E22	.429		27.8	20	SN	3	C		116		
LEAR	26	0333	0338	0442	S10	W23	.478		24.4	63	1N	3	C		374		
LEAR	26	0412	0417	0500	N20	E22	.422		27.8	48	1N	3	C		270		
LEAR	26	0550	0554	0607	N11	W47	.726		22.7	17	SN	3	C		33		
LEAR	26	0650	0651	0702	S10	W17	.407		25.0	12	SF	3	C		32		
LEAR	26	0722	0736	07390	S20	W64	.930		21.5	70	SN	3	C		58		
ISTA	26	0735E		0742	S13	W56	.875		22.1	70	SN						E
LEAR	26	0736	0737	07430	N11	W47	.726		22.8	70	SN	3	C		31		
LEAR	26	0756	0758	0824	N12	W48	.738		22.7	29	SN	3	C		78		
ISTA	26	0759E		0820	N12	W48	.738		22.7	210	1B						E
LEAR	26	0816	0828	0841	N23	E17	.388		27.6	25	SN	3	C		135		
ISTA	26	0817		08310	N27	E17	.433		27.6	140	SN						E
HOLL	26	1528	1528	1545	S13	W22	.466		25.0	17	SF	3	C		38		
HOLL	26	1620	1653	1659	N21	E16	.356		27.9	39	SN	3	C		87		
HOLL	26	1641	1641	1647	N11	W53	.793		22.7	6	SN	3	C		17		
HOLL	26	1737	1812	1304	N12	W23	.334		25.0	87	SF	3	C		77		
HOLL	26	1807	1808	1822	S12	W33	.615		24.3	15	SF	3	C		27		
PALE	26	1846	1902U	1914	S10	W30	.565		24.5	28	SF	3	C		51		
HOLL	26	1913	1918	1932	N17	E32	.541		29.2	15	SF	3	C		49		
HOLL	26	2021	2021	2033	S08	W31	.565		24.5	12	SN	3	C		25		
PALE	26	2022E	2023U	20280	S10	W31	.577		24.5	60	SF	3	C		46		
HOLL	26	2048	2049	2051	S12	W35	.638		24.2	3	SF	3	C		22		
HOLL	26	2113	2123	2205	S13	W16	.432		25.7	52	SN	3	C		157		
HOLL	26	2120	2131	2142	S08	W31	.565		24.6	12	SN	3	C		33		
HOLL	26	2349	2355	0043	S08	W21	.435		25.4	54	SN	3	C		64		
LEAR	27	0029	0059	0111	S12	W41	.707		23.9	42	1N	3	C		441		
LEAR	27	0029	0040	0131	N26	E34	.609		29.6	52	SF	3	C		64		
PALE	27	0041E	0042U	01050	S14	W39	.636		24.1	240	SF	3	C		41		
PALE	27	0042E	0057U	01050	N27	E32	.532		23.4	230	SF	3	C		72		
LEAR	27	0126	0127	0146	S06	E02	.229		27.2	20	SN	3	C		104		
LEAR	27	0145	0148	0158	N16	E27	.468		29.1	13	SN	3	C		57		
LEAR	27	0303	0313	0336	N12	W22	.378		25.5	33	SB	3	C		104		
LEAR	27	0351	0413	0650	S11	W40	.631		24.2	173	2B	3	C		386		
PEKG	27	0353E	0421	05000	S10	W42	.709		24.0	610	3B		C	0421	925	13.6	FIUZ
LEAR	27	0404	0434	0439	S38	E02	.262		27.3	5	SF	3	C		27		
LEAR	27	0449	0451	0454	N10	W30	.497		25.0	5	SF	3	C		41		
LEAR	27	0458	0502	0512	S12	E73	.966		1.7	14	SF	3	C		24		
LEAR	27	0543	0556	0624	S13	E76	.373		1.9	41	2B	3	C				
ISTA	27	0734E		0748	S10	W40	.686		24.3	140	SN						D

Hα SOLAR FLARES

AUGUST 1981

OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY			COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
ISTA	27	0734E		0758	N14	E90	1.000		3.1	160	SN						A
RAMY	27	1244	1247	1300	S11	W44	.736		24.2	16	SN	3	C		39		
RAMY	27	1248	1249	1331	N12	E22	.378		23.2	43	SN	3	C		123		
RAMY	27	1316	1318	1325	N09	W37	.597		24.8	9	SN	3	C		31		
RAMY	27	1454	1457	1510	N11	W33	.542		25.1	16	SN	3	C		29		
RAMY	27	1512	1512	1521	S10	W43	.721		24.4	9	SN	3	C		18		
RAMY	27	1544	1613	1626	S12	E71	.357		2.0	42	SF	3	C				
RAMY	27	1607	1607	1623	N16	E21	.381		29.2	16	SF	3	C		35		
RAMY	27	1634	1654	1740	N17	E19	.359		29.1	66	1N	3	C		248		
HOLL	27	1640	1700	1717	S11	E64	.915		1.5	37	SF	3	C		44		
HOLL	27	1644	1700	1722	N17	E20	.373		23.2	38	SN	3	C		166		
HOLL	27	1659	1715	1744	S04	W53	.803		23.7	45	SN	3	C		72		
RAMY	27	1702	1713	1742	S04	W55	.829		23.6	43	SN	3	C		60		
HOLL	27	1739	1739	1749	S13	E75	.975		2.4	10	SF	3	C				
HOLL	27	1755	1803	1820	S02	W52	.795		23.8	25	SF	3	C		24		
RAMY	27	1800	1803	1818	S03	W55	.827		23.6	12	SF	3	C		15		
RAMY	27	1821	1826	1837	N10	W40	.638		24.8	16	SF	3	C		53		
HOLL	27	1840	1844	1856	S03	W55	.827		23.7	16	SF	3	C		31		
RAMY	27	1850	1904	1955	N10	W40	.638		24.8	65	SB	3	C		80		
HOLL	27	1851	1904	1918	N11	W40	.638		24.8	27	SB	3	C		63		
PALE	27	1852	1904	1916	N09	W40	.638		24.8	23	SF	3	C		31		
RAMY	27	1915	1933	1955	S16	E63	.917		1.5	43	SF	3	C		27		
PALE	27	2046	2051	2058	S11	E59	.878		1.3	12	SF	3	C		29		
PALE	27	2055	2058	2103	N15	E19	.346		23.3	8	SF	3	C		25		
LEAR	28	0015	0017	0025	S12	E57	.964		1.3	10	SF	3	C		60		
LEAR	28	0137	0138	0156	S12	E56	.956		1.3	19	1N	3	C		198		
LEAR	28	0324	0335	0343	S12	E61	.896		1.7	9	SN	3	C		94		
LEAR	28	0328	0346	0408	N10	W44	.683		24.3	32	1B	3	C		372		
LEAR	28	0346	0351	0357	S11	W52	.817		24.3	11	SN	3	C		66		
LEAR	28	0606	0609	0624	N16	E13	.268		29.2	14	SF	3	C		32		
LEAR	28	0927	0937	0941	N13	W38	.613		25.5	4	SF	3	C		45		
LEAR	28	0915	0919	0946D	S04	W61	.882		23.8	310	1N	3	C		238		
ISTA	28	0920		0932	S03	W61	.881		23.8	12	SN						U
ATHN	28	0924E	0926U	0940	S02	W52	.795		24.5	150	SB	4	C		127		
RAMY	28	1351	1351	1411	S11	W56	.854		24.4	23	SF	3	C		71		
RAMY	28	1405	1410	1447	S11	E50	.798		1.3	42	1B	3	C		139		
RAMY	28	1409	1410	1419	N16	E30	.510		30.8	10	SN	3	C		35		
RAMY	28	1432	1432	1439	N10	W51	.771		24.8	7	SN	3	C		51		
RAMY	28	1452	1509	1538	S12	E49	.792		1.3	46	1B	3	C		216		
HOLL	28	1525E	1525U	1532	S10	E47	.764		1.2	70	SN	3	C		122		
HOLL	28	1757E	1807	1811	S15	E56	.864		1.9	140	SF	3	C		31		
HOLL	28	1757	1812	1840	N09	W54	.803		24.7	43	SN	3	C		64		
HOLL	28	1848	1853	1855L	S12	E46	.761		1.2	70	SN	3	C		134		
PALE	28	1900E	1900U	1908	S11	E46	.757		1.2	80	SF	3	C		57		
HOLL	28	1907E	1926U	1944	S08	W43	.713		25.6	370	1B	3	C		354		
PALE	28	1920	1924	1933	S09	W42	.705		25.7	13	1N	3	C		134		
HOLL	28	2000	2012	2023D	N10	W54	.803		24.8	230	1N	3	C		182		
PALE	28	2001	2013	2032	N09	W54	.803		24.8	31	SN	3	C		116		
HOLL	28	2017	2019	2023D	N16	E02	.158		29.0	60	SN	3	C		143		
PALE	28	2018	2021	2046	N17	E04	.185		29.1	28	SF	3	C		65		
PALE	28	2030	2044	2053	S05	W67	.327		23.8	23	SF	3	C		31		
PALE	28	2030	2031	2043	S10	E45	.743		1.2	13	SF	3	C		69		
LEAR	29	0039	0039	0052	S07	W23	.452		27.3	13	SF	3	C		27		
LEAR	29	0327	0328	0335	N15	E63	.884		2.9	9	SF	3	C		41		
LEAR	29	0328	0335	0338	N08	W61	.870		24.6	10	SF	3	C		23		
LEAR	29	0408	0411	0427	S12	W47	.772		25.6	19	SF	3	C		33		
LEAR	29	0453	0456	0516	S14	W48	.789		25.6	23	SF	3	C		39		
LEAR	29	0453	0457	0508	S12	E40	.696		1.2	15	SB	3	C		123		
PEKG	29	0458E	0500	0503	S11	E39	.680		1.1	50	SN		P	0500	63	.9	E
LEAR	29	0458	0502	0535	N12	W56	.823		25.0	37	SN	3	C		38		
LEAR	29	0540	0541	0555	S09	W62	.898		24.6	15	SF	3	C		23		
LEAR	29	0544	0544	0553	N12	W57	.832		25.0	9	SF	3	C		73		
LEAR	29	0632	0644	0715	S10	W64	.914		24.5	43	1B	3	C		222		
LEAR	29	0635	0636	0650	N10	W60	.860		24.8	15	SF	3	C		30		
BUCA	29	0636		0705	S10	W71	.955		24.0	29	SF		C	0640	54	1.7	
ATHN	29	0642E	0644U	0655	S13	W63	.884		24.8	150	1B	4	C		127		
BUCA	29	0720	0725	0740	S14	E46	.769		1.8	23	1N		C	0725	161	2.6	
LEAR	29	0722	0723	0737	S17	E46	.782		1.8	15	SN	3	C		34		
LEAR	29	0723	0734	0807	S15	W48	.733		25.7	34	SF	3	C		110		
BUCA	29	0730		0800	S13	W50	.805		25.6	30	SF		P	0738	137	1.8	

Hα SOLAR FLARES

AUGUST 1981

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. LNG. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
LEAR	29	0800	0800	0816	S17	E46	.782		1.8	16	SB	3	C		80		
PEKG	29	0802E	0805	0814	S18	E46	.787		1.8	120	1N		C	0805	139	2.3	E
PEKG	29	0812	0813	0825D	N26	W20	.451		27.8	230	SF		C	0813	34	.4	E
ATHN	29	0803E	0807U	0816	S48	E19	.845		30.8	130	SB	4	C		143		
PEKG	29	0810	0811	0814	N12	E63	.885		3.1	4	SN		C	0811	42	.9	D
LEAR	29	0845	0848	0858	N15	E17	.316		30.6	13	SN	3	C		40		
LEAR	29	0911	0913	0947D	S14	E48	.783		2.0	360	SF	3	C		35		
LEAR	29	0926	0927	0946	S09	W64	.912		24.6	20	SF	3	C		16		
HOLL	29	1328	1359	1428	N17	E15	.303		30.7	50	SF	3	C		37		
HOLL	29	1339	1347	1356	N19	W26	.468		27.6	17	SF	3	C		21		
HOLL	29	1516	1524	1529	S15	W63	.350		24.5	13	SF	3	C		11		
HOLL	29	1555	1555	1606	N16	E08	.205		30.3	11	SB	3	C		139		
HOLL	29	1612	1619	1630	S12	W72	.962		24.3	18	SF	3	C		10		
HOLL	29	1653	1653	1658	S16	E42	.738		1.9	5	SN	3	C		23		
HOLL	29	1818	1820	1841	N12	W06	.133		29.3	23	SN	3	C		38		
HOLL	29	1905E	1905U	0007	N14	E50	.761		2.5	302D	1B	3	C		286		
HOLL	29	1952	1952	1955	S10	E30	.566		1.1	3	SN	3	C		40		
HOLL	29	1957	1957	2002	N15	E07	.181		30.4	5	SN	3	C		27		
HOLL	29	2005	2005	2013	N17	E07	.208		30.4	9	SN	3	C		88		
HOLL	29	2117E	2117U	2134	S10	E84	.337		5.2	17D	1B	3	C				
HOLL	29	2209	2210	2223	S10	E38	.663		1.8	14	SF	3	C		27		
HOLL	29	2255	2259	2349	N16	E05	.178		33.3	54	SF	3	C		50		
LEAR	29	2327	2338	0003	N17	E06	.199		30.4	26	SF	3	C		29		
HOLL	29	2346	2349	0006	S10	E37	.651		1.8	18	SF	3	C		38		
LEAR	29	2349	2352	0000	N14	E50	.761		2.7	11	SN	3	C		54		
LEAR	30	0020	0020	0026	N16	W13	.228		29.3	6	SF	3	C		26		
HOLL	30	0031	0037	0041	S10	E83	.995		5.2	10	SF	3	C				
LEAR	30	0056	0125	0225	S09	W72	.959		24.6	93	2N	3	C				
PEKG	30	0124E	0124	0135	S10	W85	.338		23.7	110	1N		C	0124	97		E
LEAR	30	0125	0151	0206	N18	E10	.252		30.8	41	SF	3	C		111		
LEAR	30	0150	0153	0208	N16	W11	.241		29.3	18	SF	3	C		57		
PEKG	30	0218E	0222	0238	S12	E82	.994		5.2	20D	1N		C	0222	63		D
LEAR	30	0223E	0233U	0256	S12	E85	.338		5.5	23D	SF	3	C				
LEAR	30	0248	0250	0301	S11	E37	.657		1.9	13	SF	3	C		48		
LEAR	30	0249	0253	0300	S10	W76	.977		24.4	11	SF	3	C		25		
LEAR	30	0304	0308	0317	N14	E48	.738		2.7	13	SB	3	C		156		
PEKG	30	0307E	0308	0311	N13	E48	.738		2.7	40	SB		C	0308	92	1.4	E
LEAR	30	0330	0331	0435	S12	E36	.651		1.8	65	SN	3	C		83		
PALE	30	0334E	0341U	0405	S13	E38	.679		2.3	31D	SF	3	C		65		
PEKG	30	0355E	0355	0355D	S14	E39	.696		2.1		SN		P	0355	42	.6	E
LEAR	30	0405	0405	0410	N14	E48	.738		2.8	5	SN	3	C		18		
LEAR	30	0443	0446	0451	N16	W13	.267		29.2	8	SF	3	C		22		
PEKG	30	0559	0601	0610	N16	E01	.155		30.3	20	SN		C	0601	55	.6	E
LEAR	30	0554	0633	0627	N16	E02	.158		30.4	33	SN	3	C		105		
LEAR	30	0623	0624	0641	S12	E78	.984		5.1	19	SF	3	C				
LEAR	30	0705	0706	0718	S14	E36	.663		2.0	13	SF	3	C		21		
LEAR	30	0706	0707	0721	N14	E48	.738		2.3	15	SF	3	C		24		
ISTA	30	0732		0758	N14	E02	.124		30.5	26	SF						EK
LEAR	30	0734	0734	0737	N14	E47	.727		2.8	3	SF	3	C		20		
LEAR	30	0753	0803	0820	S12	E77	.981		5.1	27	SF	3	C				
ISTA	30	0804		0817	S12	E80	.330		5.3	13	SF						U
LEAR	30	0825	0828	0838	N14	E03	.130		30.6	13	SF	3	C		56		
ISTA	30	0827		0839	N14	E02	.124		33.5	12	SN						
LEAR	30	0907	0911	0939	S12	E76	.978		5.1	32	1N	3	C				
LEAR	30	0908	0909	0919	N11	E71	.940		4.7	11	SN	3	C		45		
ATHN	30	0910E	0915U	0924	S12	E80	.330		5.4	140	1B	4	C		159		
PEKG	30	0910	0915	0930	S13	E85	.998		5.8	20	SN		C	0915	50		E
ATHN	30	1145E	1146U	1202	N15	E05	.161		30.9	170	1B	4	C		254		
ATHN	30	1340E	1343U	1353	S12	E80	.330		5.6	130	1B	4	C		127		
ATHN	30	1340E	1348U	1355	N15	E05	.161		30.9	150	SN	4	C		190		
HOLL	30	1344E	1345U	1438	S12	E74	.970		5.1	240	1N	3	C				
HOLL	30	1344E	1346U	1440	N17	E03	.178		30.8	560	1N	3	C		227		
RAMY	30	1443	1457	1622	S21	W87	1.000		24.1	99	1B	3	C				
HOLL	30	1443	1445	1445D	N14	E44	.631		2.3	20	SB	3	C		143		D
RAMY	30	1443	1457	1622	N15	W01	.138		30.5	99	1B	3	C		396		
RAMY	30	1444	1445	1447D	N15	E44	.692		2.9	30	SB	3	C		135		
HOLL	30	1453	1455	1455D	N15	W03	.146		30.4	20	SB	3	C		57		D
RAMY	30	1507	1507	1534	N15	W20	.160		29.1	27	SN	3	C		27		
HOLL	30	1543	1545	1608	N15	W03	.146		30.4	25	SB	3	C		70		
HOLL	30	1607	1611	1624	S12	E23	.497		1.4	17	SB	3	C		46		

Hα SOLAR FLARES

AUGUST 1981

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. LONG. DIST.	CENTRAL DISTANCE	HALE PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mil. of Disk	CORR. AREA Sq. Deg.	
HOLL	30	1622	1622	1631	S11	E73	.965		5.2	9	SF	3	C				
HOLL	30	1638	1647	1702	S26	E58	.308		4.0	24	SB	3	C		71		
HOLL	30	1638	1656	1758	S11	E72	.361		5.1	80	SN	3	C				
RAMY	30	1639	1646	1701	S26	E58	.908		4.0	22	SB	3	C		65		
RAMY	30	1656E	1701	1747	S10	E72	.960		5.1	510	1N	3	C				
HOLL	30	1810	1820	1829	S24	E53	.869		3.7	10	SN	3	C		56		
RAMY	30	1813	1813	1827	S23	E53	.865		3.7	8	SN	3	C		33		
HOLL	30	1826	1835	1904	S10	E73	.965		5.2	38	SN	3	C				
HOLL	30	1827	1833	1837	S11	W77	.981		25.0	10	SN	3	C				
PALE	30	1833	1835	1845	S09	E71	.954		5.1	12	SF	3	C				
RAMY	30	1843	1851	1937	N17	W05	.131		30.4	48	2B	3	C		577		
PALE	30	1850	1851	1328	N16	W05	.176		30.4	38	1B	3	C		265		
HOLL	30	1853E	1853U	1942	N16	W33	.162		33.6	490	2B	3	C		525		
HOLL	30	1915	1950	2039	S11	E73	.965		5.3	84	1N	3	C				
HOLL	30	1917	1923	1929	S11	W77	.981		25.0	12	SN	3	C				
RAMY	30	1943	1956	2008	S11	E73	.965		5.3	25	SN	3	C				
PALE	30	1944E	1948U	2019D	S09	E71	.954		5.1	350	SF	3	C				
HOLL	30	2054	2056	2120	S11	W74	.970		25.3	26	SN	3	C		21		
HOLL	30	2152	2209	2311	S11	W79	.987		25.0	79	SN	3	C				
HOLL	30	2312	2329	0022	N15	W03	.146		30.7	70	1B	3	C		203		
PALE	30	2315	2330U	2354	N16	W08	.205		30.4	33	SN	3	C		116		
HOLL	30	2348	2349	0006	S10	E37	.651		2.8	18	SF	3	C		38		
LEAR	30	2349	2352	0000	N14	E50	.761		3.7	11	SN	3	C		54		
HOLL	30	2358	0008	0035D	S10	E69	.944		5.2	370	1N	3	C				
PALE	31	0004	0021	0028	S08	E70	.348		5.3	24	SF	3	C				
PALE	31	0050	0050	0052	S22	E53	.839		3.8	2	SF	3	C		54		
PALE	31	0105E	0113U	0122D	S11	W84	.997		24.7	170	SN	3	C				
ISTA	31	0635		0646	S08	W90	1.000		24.5	11	SF						A
ISTA	31	0705		0711	S11	E64	.315		5.1	6	SF						E
ISTA	31	0707		0712	N14	E32	.532		2.7	5	SF						E
LEAR	31	0723	0727	0748	S12	E65	.923		5.2	25	1B	3	C		122		
WEND	31	0723	0727	0746	S12	E65	.923		5.2	23	SN		C	0727	75		
ATHN	31	0724	0728	0748	S12	E65	.323		5.2	24	1B	2	C		270		
ISTA	31	0724		0748	S13	E65	.325		5.2	24	2B						F
BUCA	31	0726E	0727	0745	S09	E63	.905		5.0	190	1N		C	0727	215	5.4	C
ATHN	31	0847	0852	0919	S12	E65	.923		5.2	32	SB	2	C		143		
LEAR	31	0924	0929	0943D	N06	E63	.887		5.1	130	1F	3	C		136		
WEND	31	0927	0929	0933	N05	E64	.836		5.2	12	SF		C	0929	50	1.2	
WEND	31	1023	1032	1050	N17	W29	.499		29.3	27	SF		C	1032	75	.9	
RAMY	31	1108	1308	1348	N07	E61	.870		5.0	160	SF	3	C		109		
RAMY	31	1115	1145	1327	S07	W59	.871		27.0	132	SF	3	C		20		
HOLL	31	1442	1443	1458	S06	W60	.877		27.1	16	SF	3	C		16		
RAMY	31	1523	1539	1547	S10	W82	.993		25.5	24	SN	3	C				
HOLL	31	1532	1536	1549	N20	W12	.298		30.7	16	SF	3	C		30		
RAMY	31	1621	1629	1640	N16	W17	.323		30.4	19	SN	3	C		39		
HOLL	31	1622	1629	1639	N17	W16	.317		30.5	17	SN	3	C		50		
RAMY	31	1744	1750	1857	N17	W36	.534		29.0	73	1B	3	C		279		
PALE	31	1748	1750	1821	N16	W32	.538		29.3	33	SN	3	C		140		
HOLL	31	1749E	1751U	1841	N19	W37	.613		29.0	520	1N	2	C		267		
HOLL	31	1805	1812	1849	S10	E59	.876		5.2	44	1B	3	C		143		
PALE	31	1807	1811	1933	S09	E59	.874		5.2	26	SN	3	C		115		
RAMY	31	1812	1815	1853	S10	E63	.907		5.5	41	1N	3	C		180		
PALE	31	1828	1855	1933	S14	E18	.465		2.1	25	SF	3	C		25		
RAMY	31	1929	1934	1938	S10	E03	.300		1.0	9	SF	3	C		21		
PALE	31	1929	1931	1935	S11	E02	.314		1.0	6	SF	3	C		25		
HOLL	31	2237E	2238U	2250	N13	W15	.322		30.8	130	SN	3	C		33		
HOLL	31	2312	2329	0022	N15	W03	.145		31.7	70	1B	3	C		203		

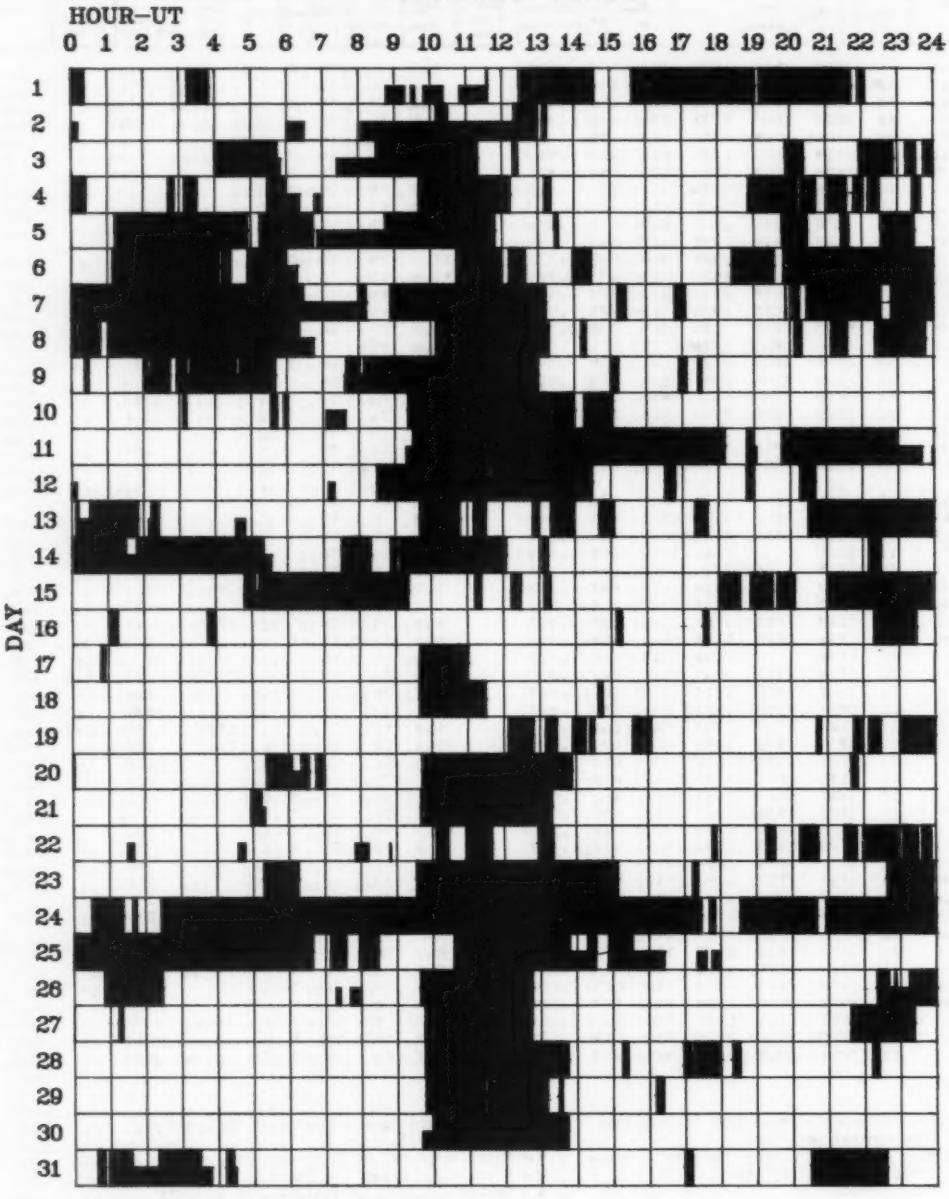
"REMARKS":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by high-speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the H and K lines of CaII.
P = Flare shows helium D3 in emission.
Q = Flare shows Balmer continuum in emission.
R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
S = Brightness follows disappearance of filament in same position.
T = Region active all day.
U = Two bright branches, parallel or converging.
V = Occurrence of an explosive phase: important, expansion within roughly 1 minute that often includes a significant intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide H-alpha line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

AUGUST 1981



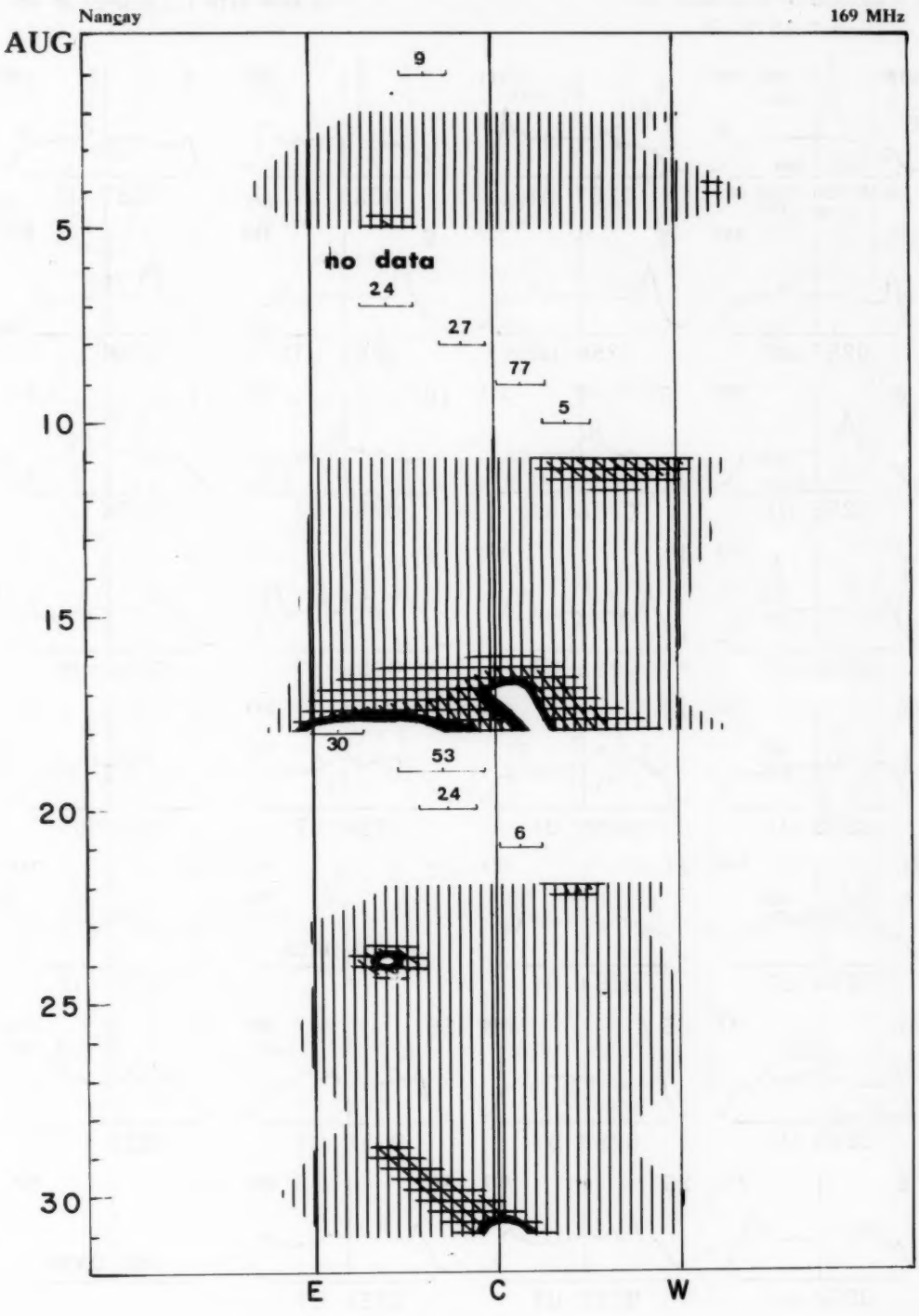
Observatories included in total patrol:

Bucharest	Istanbul	Manila	Peking	Ramey
Holloman	Learmonth	Palehua	Purple Mt.	Upice
				Wendelstein

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

AUGUST 1981



28
Aug 81

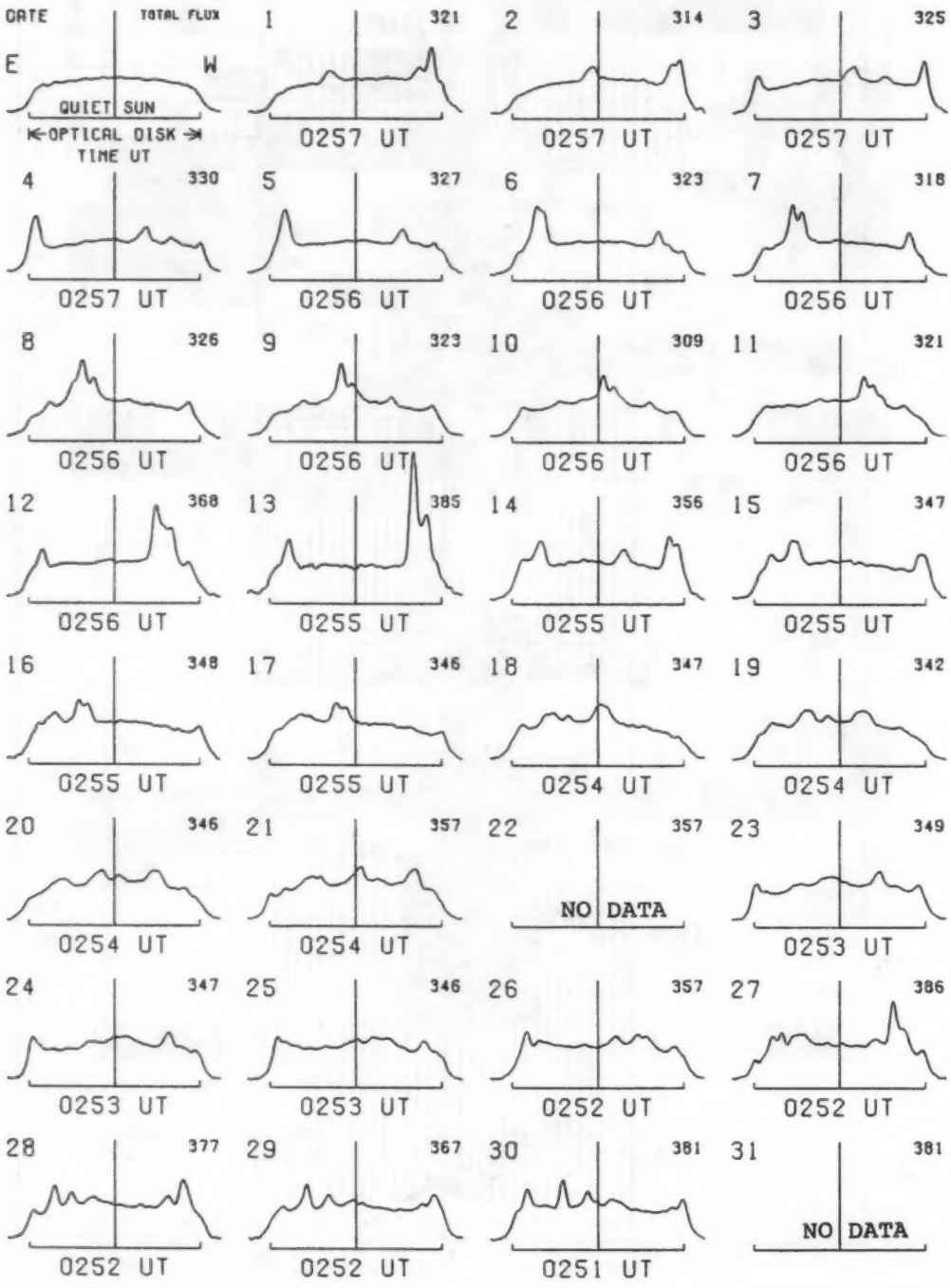
EAST-WEST SOLAR SCANS

AUGUST 1981

TOYOKAWA. JAPAN

3 CM

FAN BEAM WITH 1.1 MINUTES OF ARC

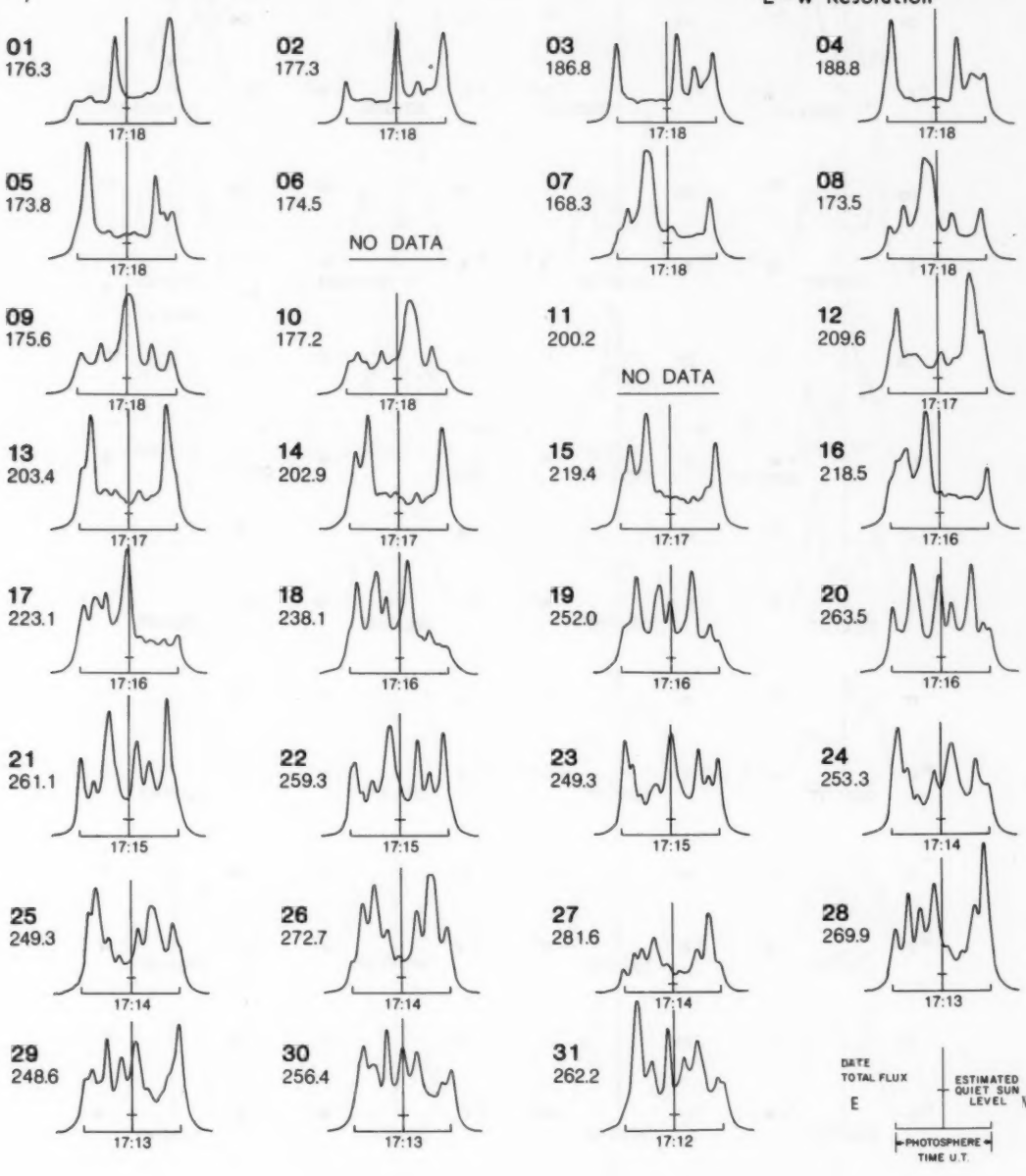


EAST-WEST SOLAR SCANS

AUGUST 1981

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution



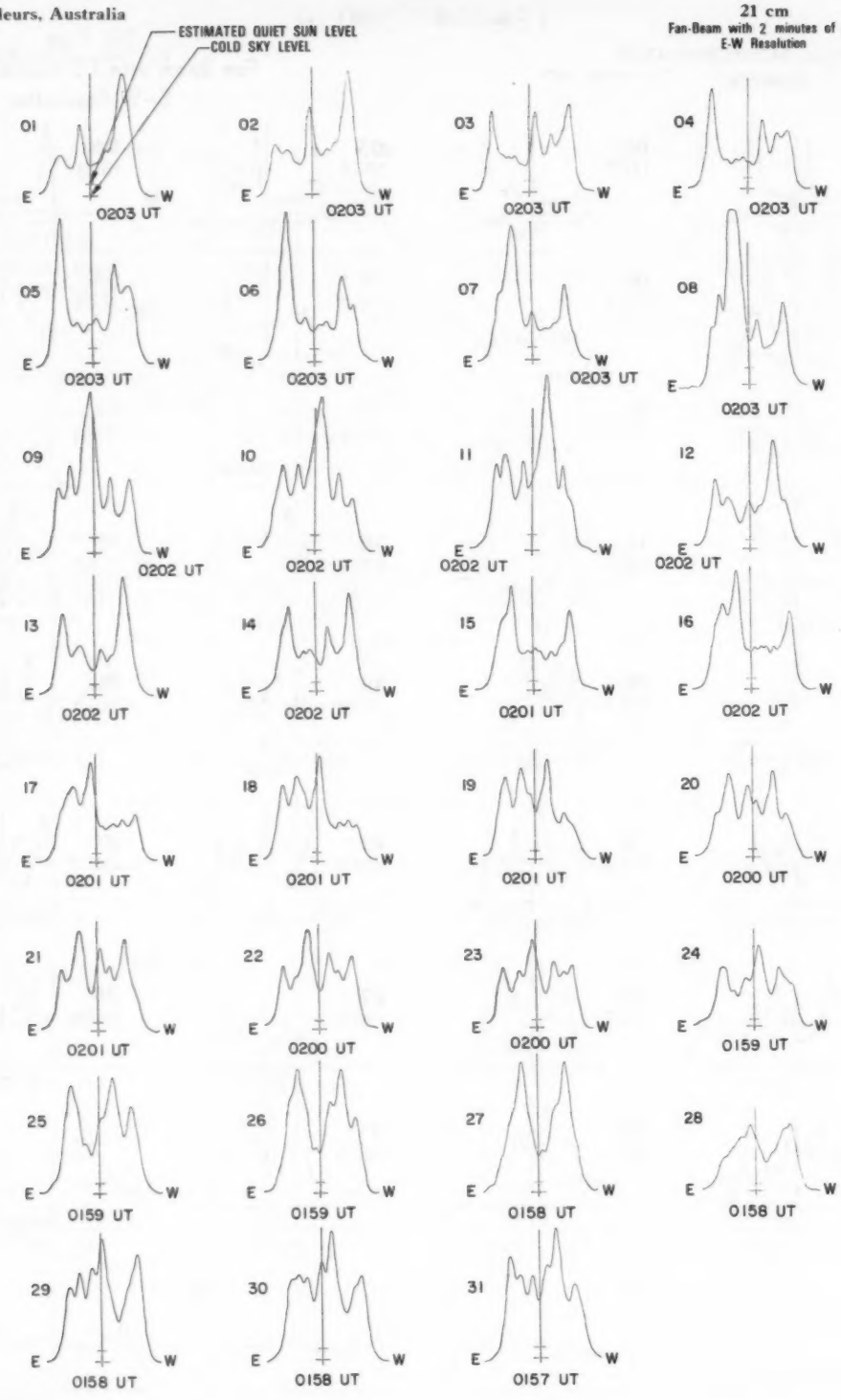
30
Aug 81

EAST-WEST SOLAR SOLAR SCANS

AUGUST 1981

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

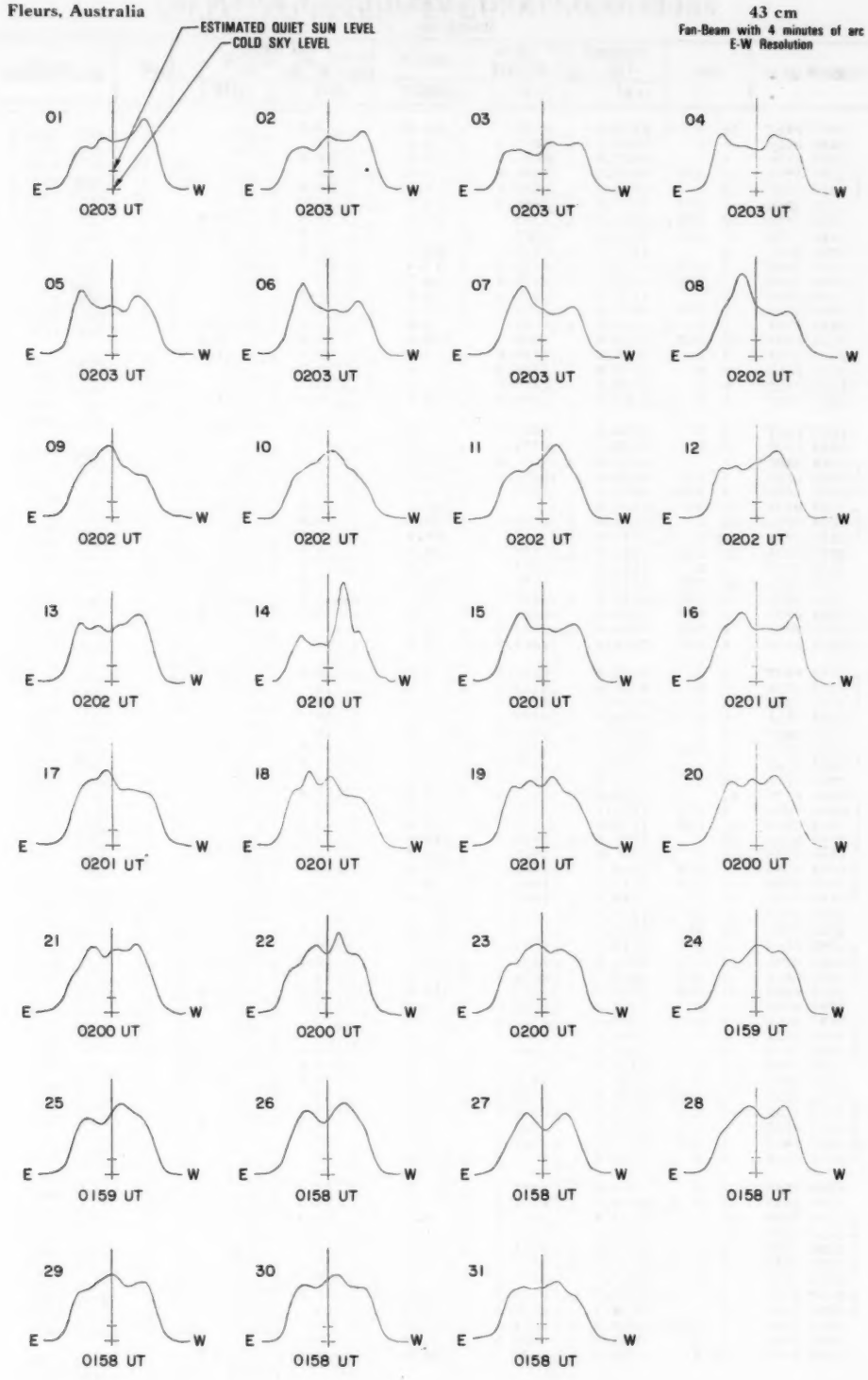


EAST-WEST SOLAR SCANS

AUGUST 1981

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
01	2695	PENT	20 GRF	0035.0	0125	85.0D	3.6			
	8800	PALE	8 S	0050.3	0051.3	2.0	27			
	8400	BERN	4	0807.0	0808.5	7.0	50.0			
	2695	ATHN	4 S/F	0807.3	0808.0	3.0D	29			
	3200	BERN	4	0807.5	0808.5	7.0	37.0			OPR
	8800	ATHN	4 S/F	0807.6	0808.5	2.7	38			
	2800	OTTA	20 GRF	1320.0	1332	45.0	6.2	3.0		
	2800	OTTA	21 GRF	1435.0	1502	75.0	3.8	1.9		
	8400	BERN	3	1437.0	1439.1	14.0	56.0			
	2695	SGMR	4 S/F	1437.1	1439.0	14.2	07			
	8800	SGMR	4 S/F	1437.6	1439.0	6.7D	55			
	3200	BERN	1	1437.6	1439.0	4.0	14.0			OPR
	8800	ATHN	4 S/F	1437.8	1439.1	4.5	41			
	2800	OTTA	1 S	1437.8	1439	5.0	7.2	3.0		
	2800	OTTA	21 GRF	1830.0	1950	330.0	15.6	5.2		
	2800	OTTA	3 S	2227.0	2229.5	7.0	10.6	3.4		
	2695	PALE	8 S	2228.8	2229.3	.8	13			
	8800	PALE	8 S	2229.1	2229.1	.7	13			
	2695	PENT	1 S	2257.5	2258.8	4.0	6.2	3.0		
02	2695	PENT	8 S	0040.0	0040.2	.8	4.8	2.4		
	8800	LEAR	8 S	0339.5	0339.6	.6	27			
	3200	BERN	1	0634.0	0637.0	6.0	9.0			OPR
	8800	LEAR	4 S/F	0635.1	0637.1	4.0	24			
	2695	LEAR	4 S/F	0635.1	0637.3	4.4	11			
	2800	OTTA	27 RF	1115.0		115.0	2.8	2.1		
	2800	OTTA	24 R	1115.0	1145	30.0	2.8	1.4		
	2800	OTTA	24P R	1145.0		60.0	2.8			
	2800	OTTA	26 FAL	1245.0	1310	25.0	-2.8	-1.4		
	2800	OTTA	1 S	1501.0	1503	3.5	2.0	1.0		
	2800	OTTA	20 GRF	1515.0	1527	45.0	5.0	2.4		
	2800	OTTA	20 GRF	1930.0	2012	75.0	4.2	1.8		
	2800	OTTA	4 S/F	2200.0	2203	7.0	26.6	10.0		
	2695	PALE	4 S/F	2200.8	2203.0	3.5	37			
	8800	PALE	4 S/F	2200.8	2201.3	2.8	27			
03	2695	PENT	1 S	0137.0	0137.5	1.0	6.2	2.8		
	8800	LEAR	8 S	0137.0	0137.3	.8	21			
	2695	LEAR	8 S	0137.1	0137.5	.7	15			
	8800	PALE	8 S	0239.8	0240.1	.5	28			
	8800	PALE	8 S	0424.0	0424.1	.8	58			
	2800	OTTA	4 S/F	1119.0	1120	7.0	36.0	13.6		
	3200	BERN	1	1119.0	1119.7	5.0	36.0			OPR
	2800	OTTA	1 S	1213.0	1213.2	2.0	2.8	1.4		
	8400	BERN	41	1600.0	1648.6	86.0U	150.0			
	8800	SGMR	4 S/F	1602.1	1605.6	11.9	50			
	2800	OTTA	21 GRF	1625.0	1637	40.0	3.6			
	3200	BERN	22	1627.0	1648.7	30.0	23.0			OPR
	2800	OTTA	1 S	1628.0	1629	4.0	6.2	3.1		
	8800	SGMR	4 S/F	1643.1	1648.6	18.5D	130			
	2695	SGMR	4 S/F	1643.1	1648.6	15.7D	13			
	2800	OTTA	45 C	1644.0	1648.8	8.0	16.0	8.0		
	8800	PALE	47 GB	1727.1	1727.3	.2	16			
	2800	OTTA	21 GRF	2010.0		35.0	6.8	3.4		
	8800	PALE	4 S/F	2019.3	2024.3	14.5	260			
	2800	OTTA	4 S/F	2021.0	2024.5	6.0	49.0	23.0		
	2695	PALE	4 S/F	2022.3	2024.3	3.8	53			
	2695	PENT	21 GRF	2250.0	2343	150.0	9.0	3.0		
	2695	PENT	1 S	2259.5	2259.6	1.0	3.6	1.8		
	2695	PALE	8 S	2308.6	2308.8	.5	17			
	8800	PALE	8 S	2308.6	2308.8	.7	27			
	2695	PENT	1 S	2308.7	2309	1.3	5.4	2.7		
	2695	PENT	8 S	2310.2	2310.4	.8	5.0	2.3		
	2695	PENT	8 S	2334.2	2334.6	.7	5.4	2.7		
	8800	LEAR	4 S/F	2336.5	2340.8	6.3	22			
	2695	LEAR	4 S/F	2336.6	2339.5	6.2	17			
	2695	PENT	1 S	2338.0	2340	4.0	7.2	4.0		
	8800	PALE	4 S/F	2338.1	2340.8	3.4	39			
	2695	PALE	8 S	2338.6	2339.3	1.2	16			
04	8800	LEAR	8 S	0353.8	0354.1	.8	17			
	8800	LEAR	8 S	0419.6	0420.0	.9	11			
	3200	BERN	41	0652.5	0657.0	8.0	33.0			OPR
	8400	BERN	41	0652.7	0657.2	6.0	77.0			
	8800	LEAR	8 S	0652.8	0654.0	2.0	17			
	8800	LEAR	8 S	0657.1	0657.3	.4	55			
	2695	LEAR	8 S	0657.3	0657.3	.2	25			
	8400	BERN	3	0809.2	0810.3	5.0	40.0			
	8800	LEAR	8 S	0810.1	0810.3	1.5	31			
	2695	LEAR	4 S/F	0810.6	0812.1	2.9	07			
	2695	LEAR	8 S	0841.6	0842.1	.5	23			
	2800	OTTA	240 R	1140.0	1220	40.0	5.4	2.7		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
AUGUST 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	REMARKS
04	2800	OTTA	3 S	1221.0	1222	2.0	11.2	8.0		
	3200	BERN	1	1221.1	1221.6	1.5	13.0			OPR
	2800	OTTA	29 PBI	1223.0	1223	30.0	4.4	2.2		
	2695	SGMR	4 S/F	1528.6	1529.6	4.4D	270			
	8400	BERN	47	1529.0	1529.5	3.0	547.0			
	3200	BERN	4	1529.0	1529.5U	9.0	226.0			OPR
	2800	OTTA	3 S	1529.0	1529.8	3.0	295.0	54.0		
	8800	SGMR	47 GB	1529.1	1529.6	3.4D	510			
	2800	OTTA	29 PBI	1532.0	1532	110.0	9.4			
	2800	OTTA	20 GRF	1740.0	1755	30.0	2.8	1.4		
	2800	OTTA	260 FAL	1845.0	1910	25.0	-5.4	-2.7		
	2695	LEAR	8 S	2326.8	2327.1	1.0	06			
	8800	LEAR	8 S	2326.8	2327.1	1.0	22			
	2695	PENT	8 S	2327.0	2327.2	.8	5.8	2.9		
05	3200	BERN	2	0738.0	0739.0	4.0	17.0			OPR
	8800	ATHN	8 S	0738.3	0739.0	1.8	71			
	2695	ATHN	8 S	0738.5	0739.0	1.0D	17			
	2800	OTTA	240 R	1245.0	1300	15.0	3.6	1.8		
	2800	OTTA	20 GRF	1305.0	1350	115.0	-2.6			
06	8800	ATHN	4 S/F	0817.1	0819.3	5.5	78			
	3200	BERN	99	0817.1	0820.0	28.0	44.0			OPR
	2695	ATHN	4 S/F	0818.0	0820.1	3.5D	36			
	2800	OTTA	1 S	1731.5	1731.8	1.0	2.4	1.2		
	2800	OTTA	21 GRF	1810.0	1824	90.0	4.2	2.1		
	2800	OTTA	8 S	1911.5	1911.6	.6	8.2	4.1		
	2800	OTTA	1 S	1918.0	1918.2	1.2	3.4	1.7		
	2695	PENT	21 GRF	2140.0	2205	50.0	2.6	1.3		
	2695	PENT	8 S	2224.0	2224.1	.2	2.6			
07	2695	PENT	8 S	0009.8	0009.9	.5	4.0	2.0		
	2695	PALE	47 GB	0159.1	0166.1	72.0	70			
	3200	BERN	20	0733.5	0738.0	22.0	19.0			OPR
	2695	ATHN	4 S/F	0736.0	0738.0	7.3D	11			
	8800	LEAR	4 S/F	0737.1	0737.8	2.4	03			
	2695	LEAR	4 S/F	0737.1	0738.3	3.0	16			
	8800	ATHN	4 S/F	0737.3	0738.3	3.7	04			
	2800	OTTA	20 GRF	1220.0	1242	40.0	2.0	1.5		
	2800	OTTA	1A S	1310.0	1320	10.0	2.0	1.0		
	3200	BERN	41	1311.5	1314.1	4.0	11.0			OPR
	2695	SGMR	4 S/F	1311.5	1314.1	3.5D	01			
	2800	OTTA	1 S	1311.9	1312.1	1.2	2.8	1.4		
	8800	SGMR	8 S	1313.8	1314.3	1.2D	17			
	2800	OTTA	1 S	1314.0	1314.2	1.0	6.4	3.0		
	2695	ATHN	8 S	1314.1	1314.3	.7D	13			
	8800	ATHN	8 S	1314.1	1314.3	.7	25			
	3200	BERN	20	1353.0	1356.5	20.0	16.0			OPR
	2800	OTTA	20 GRF	1353.0	1357	75.0	12.4	4.4		
	2695	ATHN	4 S/F	1353.6	1359.0	14.4D	15			
	8800	ATHN	4 S/F	1355.3	1359.6	12.7	13			
	2800	OTTA	32 ABS	1550.0	1700	85.0	-3.4	-2.0		
	2800	OTTA	47 GB	1858.0	1907.2	86.0	585.0	199.0		
	2695	PALE	47 GB	1901.1	1907.1	20.5	480			
	8800	PALE	47 GB	1902.1	1906.8	19.5	390			
	8800	PALE	47 GB	1921.6	1921.8	10.0	100			
	2695	PALE	47 GB	1921.6	1921.6	10.0	200			
	2695	PALE	47 GB	1931.6	1935.1	18.2	110			
	2695	PALE	47 GB	1949.8	1951.3	11.5	220			
	2695	PALE	47 GB	2001.3	2001.8	14.5	90			
	2695	PALE	47 GB	2015.8	2016.6	11.3	70			
	2800	OTTA	30 PBI	2024.0	2024	340.0D	90.0			
	2695	PALE	4 S/F	2036.1	2037.3	16.2	46			
	2800	OTTA	22 GRF	2100.0	2122	35.0	16.6	8.3		
	2800	OTTA	20 GRF	2147.0	2200	75.0	32.0	12.0		
	2695	PALE	47 GB	2154.0	2155.8	4.1	20			
08	8800	SGMR	8 S	1419.1	1419.6	2.0	10			
	2800	OTTA	20 GRF	1605.0	1624	55.0	2.2	1.0		
	2800	OTTA	240 R	1745.0	1810	25.0	4.0	2.0		
	2800	OTTA	240AR	2020.0	2050	30.0	4.0			
	2800	OTTA	46F C	2025.2	2027.9	6.8	83.0	44.0		
	8800	PALE	8 S	2025.5	2026.3	5.1	460			
	2695	PALE	8 S	2025.5	2027.8	13.1	92			
	2800	OTTA	29 PBI	2032.0	2032	14.0	15.2	5.0		
	2800	OTTA	28 PRE	2127.5	2129.8	3.7	6.8	4.6		
	2695	PALE	47 GB	2128.8	2129.5	11.8	28			
	2800	OTTA	3 S	2131.2	2133.6	7.8	45.0	22.0		
	8800	PALE	4 S/F	2132.3	2133.3	3.5	66			
	2800	OTTA	29 PBI	2138.0	2138	90.0	9.4	4.6		
09	8800	LEAR	47 GB	0253.8	0257.1	10.7	24			
	2695	LEAR	4 S/F	0255.3	0257.1	3.5	16			
	2695	PALE	8 S	0412.0	0412.3	.1	22			
	8800	LEAR	8 S	0517.5	0517.6	1.3	21			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
AUGUST 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
09	8800	ATHN	4 S/F	1459.0	1502.6	8.5	150			
	2800	OTTA	4 S/F	1459.0	1502	8.0	43.0	20.0		
	8400	BERN	46	1459.0	1501.7	6.0	173.0			
	3200	BERN	4	1459.0	1501.8	14.0	92.0			OPR
	2800	OTTA	29 PBI	1507.0	1507	100.0	3.6	1.9		
	2695	PALE	47 GB	1653.3	1653.3	11.0	43			
	8800	PALE	47 GB	1653.3	1653.6	10.5	57			
	2695	PENT	22 GRF	1950.0	2010	60.0	2.8	1.2		
10	3200	BERN	3	0631.7	0633.0	6.0	86.0			OPR
	2695	LEAR	4 S/F	0632.3	0633.1	5.8	79			
	8800	ATHN	4 S/F	0632.3	0633.3	5.0	85			
	8400	BERN	3	0632.5	0633.0	3.0	98.0			
	8800	LEAR	4 S/F	0632.5	0633.0	2.1	83			
	2695	ATHN	4 S/F	0632.6	0633.1	2.9D	47			
	8400	BERN	47	0657.5	0659.0	9.0	770.0			
	3200	BERN	4	0657.5	0659.0	9.0	274.0			
	8800	MANI	47 GB	0658.0	0659.1	4.5	540			
	8800	ATHN	47 GB	0658.0	0659.1	7.5	660			
	2695	LEAR	4 S/F	0658.1	0659.1	14.4	250			
	2695	ATHN	4 S/F	0658.1	0659.3	7.2D	220			
	8800	LEAR	47 GB	0658.1	0658.8	14.4	760			
	2695	MANI	4 S/F	0658.5	0659.3	8.5D	220			
	8400	BERN	3	0745.5	0745.8	3.0	139.0			
	3200	BERN	3	0745.5	0745.8	3.0	130.0			
	2695	ATHN	4 S/F	0745.6	0746.0	3.7D	96			
	8800	ATHN	4 S/F	0745.6	0746.0	2.2	110			
	8800	MANI	4 S/F	0746.0	0746.3	2.6	130			
	2800	OTTA	240 R	1216.0	1222	6.0	2.2	1.1		
	2800	OTTA	20 GRF	1240.0	1242	20.0	6.0	2.0		
	2800	OTTA	22 GRF	1435.0	1620	145.0	6.0	2.8		
	2800	OTTA	20 GRF	1802.0	1812	160.0	6.0	4.2		
	2800	OTTA	20 GRF	2226.0	2228	25.0	2.8	1.2		
11	8800	LEAR	4 S/F	0043.6	0043.8	2.5	13			
	8800	LEAR	47 GB	0143.6	0145.3	18.0	1399			
	2695	LEAR	47 GB	0143.8	0145.3	17.8	630			
	8800	MANI	47 GB	0144.0	0145.6	10.0	1300			
	2695	PENT	47 GB	0144.0	0145.5	8.0	725.0	145.0		
	2695	MANI	47 GB	0144.1	0145.8	10.9D	550			
	2695	PENT	29 PBI	0152.0	0152	6.0D	20.0			
	8800	PALE	8 S	0206.5	0208.0	.1	23			
	3200	BERN	4	0735.0	0749.0	50.0U	130.0			
	8400	BERN	4	0737.0	0748.6	52.0	116.0			
	2695	MANI	47 GB	0740.5	0749.3	77.8D	139			
	2695	ATHN	4 S/F	0740.6	0749.5	43.5D	110			
	8800	MANI	47 GB	0741.0	0748.8	23.0	130			
	8800	ATHN	4 S/F	0741.8	0749.6	30.5	88			
	2800	OTTA	240 R	1200.0	1245	45.0	7.6	3.8		
	2800	OTTA	23 GRF	1324.0	1338	18.0	5.4	2.2		
	8800	ATHN	4 S/F	1329.6	1334.8	9.7	40			
	2695	ATHN	4 S/F	1330.1	1334.8	12.2D	15			
	3200	BERN	3	1331.0	1334.6	3.0	17.0			
	8400	BERN	8	1334.5	1334.5	3.0	40.0			
	8800	SGMR	8 S	1334.6	1334.6	1.2D	30			
	2695	SGMR	8 S	1334.6	1334.6	1.2D	11			
	2800	OTTA	3 S	1334.7	1334.8	1.0	10.6	3.6		
	2695	PENT	1 S	1410.0	1418	9.0	3.4	1.7		
	3200	BERN	21	1438.0	1447.6	56.0D	31.0			
	8400	BERN	45	1439.0	1440.0	40.0	93.0			
	8800	ATHN	4 S/F	1439.6	1440.1	2.7	82			
	2800	OTTA	21 GRF	1440.0	1457	77.0	13.2	6.2		
	2800	OTTA	240AR	1440.0	1550	70.0	5.0			
	2695	ATHN	4 S/F	1443.8	1447.8	22.3D	28			
	8800	ATHN	4 S/F	1444.8	1447.8	18.5	28			
	2695	SGMR	4 S/F	1446.0	1447.6	2.6D	19			
	8800	SGMR	4 S/F	1446.0	1447.5	3.0D	33			
	2695	PENT	4 S/F	1447.0	1447.9	4.0	14.8	6.0		
	8400	BERN	3	1534.0	1538.3	8.0	45.0			
	8800	SGMR	4 S/F	1537.6	1538.3	2.9D	54			
	8800	ATHN	4 S/F	1538.1	1538.6	4.5	48			
	2800	OTTA	8 S	1657.0	1657	.3	4.2			
	2800	OTTA	1 S	1719.2	1719.5	1.5	2.6	1.4		
	2800	OTTA	21 GRF	1725.0	1750	55.0	5.0	1.6		
	2800	OTTA	1 S	1741.2	1741.6	1.0	3.2	1.6		
	2800	OTTA	1 S	1807.0	1808.4	3.0	4.0	1.8		
	2800	OTTA	21 GRF	1835.0	1844	50.0	7.4	3.4		
	2800	OTTA	1 S	1855.5	1856	1.8	4.2	2.1		
	2800	OTTA	21 GRF	2215.0	2228	40.0	5.0	2.8		
	2695	PENT	20 GRF	2330.0	2340	50.0	3.4	1.8		
12	2695	PENT	21 GRF	0030.0	0100	80.0D	18.4			
	8800	LEAR	4 S/F	0058.6	0100.6	8.4	21			
	2695	LEAR	4 S/F	0059.3	0059.8	7.7	13			
	2695	PENT	45 C	0118.3	0119.7	2.0	43.0	21.0		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
12	2695	LEAR	4 S/F	0118.3	0119.5	2.5	43			
	2695	MANI	8 S	0118.3	0119.0	2.0D	40			
	8800	LEAR	8 S	0118.6	0118.8	1.0	25			
	2695	LEAR	8 S	0220.3	0220.5	.5	10			
	8800	LEAR	8 S	0220.3	0220.5	.5	09			
	2695	ATHN	8 S	0417.5	0417.8	1.6D	18			
	8800	ATHN	8 S	0417.5	0417.8	1.1	42			
	2695	LEAR	8 S	0417.6	0417.8	1.2	22			
	8800	LEAR	8 S	0417.6	0417.8	.9	48			
	3200	BERN	47	0623.6	0626.0	26.0	776.0			
	8400	BERN	47	0623.6	0625.7	14.0	1041.0			
	8800	MANI	4 S/F	0624.8	0626.0	6.2	500			
	2695	MANI	47 GB	0625.0	0626.1	11.0D	660			
	3200	BERN	3	1011.0	1012.2	2.0	11.0			
	3200	BERN	3	1025.7	1026.2	3.0	11.0			
	2800	OTTA	260 FAL	1155.0	1240	45.0	-8.2	-4.4		
	8800	SGMR	8 S	1300.6	1300.6	.7D	24			
	2800	OTTA	240 R	1410.0	1500	50.0	5.4			
	2800	OTTA	21 GRF	1615.0	1710	110.0	5.6	2.8		
	2695	PENT	1 S	1700.0	1701.5	6.0	9.8	3.0		
	2800	OTTA	240 R	1830.0	1935	65.0	3.4	1.7		
	2695	PENT	4 S/F	2002.0	2003.5	3.0	22.0	10.0		
	2695	PALE	8 S	2002.6	2003.3	1.0	22			
	2800	OTTA	29 PBI	2005.0	2005	30.0	2.2	1.1		
	2800	OTTA	21 GRF	2055.0	2113	145.0	21.0	7.0		
	8800	PALE	8 S	2059.6	2100.6	1.2	19			
	8800	PALE	47 GB	2103.5	2105.6	15.8	82			
	2695	PALE	4 S/F	2104.6	2105.0	14.7	34			
	2800	OTTA	3 S	2104.7	2105	5.0	27.0	13.0		
	8800	MANI	47 GB	2216.0	2226.6	12.0	210			
	8800	PALE	8 S	2217.3	2218.5	1.5	139			
	2800	OTTA	3 S	2225.7	2226.3	8.0	206.0	35.0		
	2695	MANI	4 S/F	2226.1	2226.6	3.9D	160			
13	2695	LEAR	43 NS	0740.3	0740.3	.3	11			
	2695	PENT	20 GRF	0000.0	0110	120.0D	11.8			
	8800	PALE	8 S	0124.6	0125.0	.9	52			
	2695	PALE	47 GB	0250.8	0251.1	2.0	160			
	8800	PALE	47 GB	0250.8	0251.3	12.8	139			
	2695	LEAR	8 S	0341.8	0342.5	1.3	17			
	8800	LEAR	4 S/F	0341.8	0342.3	2.3	36			
	8800	LEAR	8 S	0400.8	0400.8	.2	19			
	3200	BERN	45	0634.0	0637.8	6.0	14.0			
	2695	LEAR	8 S	0637.5	0638.0	1.3	13			
	3200	BERN	21	0733.0	0804.8	50.0D	64.0			
	8800	ATHN	4 S/F	0802.1	0804.6	6.5	250			
	8800	LEAR	4 S/F	0802.8	0804.8	24.7	310			
	8400	BERN	21	0803.0	0804.7	50.0D	264.0			
	8800	MANI	4 S/F	0803.0	0805.3	12.0	350			
	2695	MANI	4 S/F	0803.0	0805.0	6.6D	62			
	2695	ATHN	4 S/F	0803.3	0804.6	4.8D	43			
	2695	LEAR	4 S/F	0803.5	0804.8	23.0	54			
	8400	BERN	41	1038.0	1056.3	30.0	26.0			
	3200	BERN	41	1038.0	1056.3	30.0	7.0			
	8800	SGMR	4 S/F	1059.3	1200.1	62.7D	36			
	2800	OTTA	22 GRF	1120.0	1235	225.0	14.6	7.3		
	3200	BERN	20	1200.0	1225.0	60.0	8.0			
	8400	BERN	21	1200.0	1200.2	60.0	28.0			
	3200	BERN	21	1331.0	1336.8	9.0D	9.0			
	8400	BERN	4	1335.0	1338.0	6.0D	55.0			
	8800	ATHN	4 S/F	1335.3	1338.0	5.0	54			
	8800	SGMR	4 S/F	1335.3	1338.0	4.0D	61			
	2695	SGMR	4 S/F	1335.3	1338.0	4.5D	07			
	2695	ATHN	4 S/F	1335.6	1337.8	4.5D	07			
	8800	PALE	8 S	2137.3	2137.6	.7	28			
	2800	OTTA	1 S	2237.8	2238	1.0	2.6	1.3		
	2695	PENT	240AR	2310.0	2320	10.0	3.8	1.9		
	2695	PENT	1 S	2314.0	2315.2	4.0	6.2	3.0		
14	2695	PENT	21 GRF	0020.0	0115	100.0D	22.6			
	2695	PENT	40 F	0028.0	0038	17.5	34.6			
	2695	LEAR	47 GB	0032.8	0037.8	18.3	38			
	8800	LEAR	47 GB	0034.8	0048.3	19.5	139			
	2695	PALE	4 S/F	0037.1	0037.8	11.2	33			
	8800	PALE	8 S	0047.8	0048.3	.5	200			
	2695	PENT	3 S	0048.0	0048.7	3.0	45.0	16.8		
	2695	PALE	8 S	0048.3	0048.5	1.8	50			
	8800	PALE	4 S/F	0048.3	0048.3	10.0	230			
	8800	LEAR	4 S/F	0258.3	0300.8	4.3	16			
	8800	ATHN	4 S/F	0519.8	0522.8	6.3	68			
	2695	ATHN	4 S/F	0520.3	0522.3	4.0D	35			
	8800	LEAR	4 S/F	0520.6	0521.0	3.2	23			
	2695	LEAR	4 S/F	0520.6	0521.0	2.7	32			
	8400	BERN	3	0635.3	0640.6	2.0	17.0			
	2695	MANI	4 S/F	0635.3	0635.8	3.7D	07			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
AUGUST 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
14	3200	BERN	3		0635.3	0637.5	7.0	14.0			
	8800	LEAR	4	S/F	0635.6	0635.8	5.5	26			
	2695	LEAR	4	S/F	0635.6	0635.8	2.4	18			
	2800	OTTA	20	GRF	1310.0	1400	105.0	2.2	1.1		
	3200	BERN	3		1531.0	1534.0	5.0	41.0			
	8400	BERN	41		1532.0	1534.0	3.0	40.0			
	8800	SGMR	4	S/F	1532.3	1534.1	3.7D	41			
	2800	OTTA	3	S	1533.0	1534.1	5.0	25.0	6.6		
	2695	SGMR	4	S/F	1533.3	1534.1	3.2	25			
	2695	ATHN	4	S/F	1533.6	1534.1	2.9D	20			
	8800	ATHN	8	S	1533.6	1534.1	1.2	30			
	2800	OTTA	31	ABS	1538.0	1610	85.0	-3.4	-1.8		
	8800	SGMR	4	S/F	1547.6	1548.0	2.2	16			
	2800	OTTA	21	GRF	1820.0	1828	70.0	6.4	3.2		
	2800	OTTA	3	S	1824.8	1825.5	2.2	10.8	5.4		
	2695	PENT	240	R	2220.0	2250	30.0	5.0	2.5		
15	8800	LEAR	4	S/F	0135.5	0137.8	8.5	370			
	8800	PALE	4	S/F	0135.6	0138.0	28.0	410			
	8800	PALE	4	S/F	0135.6	0138.0	28.0	410			
	2695	LEAR	4	S/F	0136.6	0138.0	4.0	20			
	2695	PALE	8	S	0137.8	0138.8	1.2	20			
	3200	BERN	3		0641.0	0643.5	10.0	37.0			OPR
	8400	BERN	3		0641.0	0648.3	10.0U	32.0			OPR
	2695	ATHN	4	S/F	0641.1	0644.3	5.0D	43			
	2695	LEAR	4	S/F	0641.1	0643.3	5.5	48			
	8800	ATHN	4	S/F	0643.8	0646.3	4.0	34			
	8800	LEAR	8	S	0644.3	0645.5	1.3	17			
	2800	OTTA	20	GRF	1115.0	1215	155.0	13.4	8.0		
	8400	BERN	20		1115.0	1118.0	8.0	30.0			OPR
	8800	SGMR	4	S/F	1115.5	1117.3	11.8	19			
	8800	ATHN	4	S/F	1115.6	1117.5	13.4	33			
	2695	SGMR	4	S/F	1116.1	1124.5	10.0D	10			
	2800	OTTA	240	R	1420.0	1535	75.0	4.2			
	2695	PENT	20	GRF	2310.0	2320	80.0	5.6	2.8		
16	2695	PALE	8	S	0324.1	0324.1	.2	16			
	2695	PALE	8	S	0328.3	0328.3	.2	17			
	2695	PALE	47	GB	0336.8	0337.0	.3	23			
	8800	MANI	4	S/F	0524.3	0529.1	9.2	68			
	8800	LEAR	4	S/F	0527.6	0528.8	6.9	61			
	8400	BERN	3		0528.0	0529.0	4.0	51.0			OPR
	2695	LEAR	8	S	0529.1	0529.3	1.7	11			
	2800	OTTA	21	GRF	1345.0	1450	305.0	6.2	3.1		
	2800	OTTA	1	S	1727.0	1728	3.0	5.8	2.9		
	2800	OTTA	21	GRF	1910.0	1942	90.0	11.3	4.0		
	2800	OTTA	1	S	1935.0	1937	4.0	6.6	3.3		
	8800	PALE	8	S	1936.5	1936.6	.1	26			
	2800	OTTA	21	GRF	2234.0	2250	65.0	6.0	3.0		
	2800	OTTA	1	S	2236.5	2237.2	1.5	4.6	1.8		
17	2695	PALE	8	S	0251.3	0251.6	.5	27			
	2695	LEAR	8	S	0251.3	0251.6	.5	21			
	2695	PALE	8	S	0342.1	0342.3	.4	22			
	2695	LEAR	8	S	0539.3	0539.8	1.7	09			
	8800	LEAR	8	S	0539.6	0539.8	.2	21			
	2800	OTTA	20	GRF	1155.0	1205	30.0	4.2	2.1		
	2800	OTTA	20	GRF	1240.0	1420	175.0	6.2	3.0		
	2800	OTTA	20	GRF	1750.0	1757	80.0	7.6	3.6		
	2800	OTTA	240	AR	1945.0	2030	45.0	6.0	1.6		
	2695	PENT	4	S/F	2011.0	2011.9	1.2	30.6	7.6		
	2695	PALE	8	S	2011.6	2011.8	.7	26			
	2800	OTTA	20	GRF	2035.0	2055	70.0	3.0	1.8		
18	2800	OTTA	4	S/F	1116.0	1117	2.0	82.0	14.0		
	3200	BERN	4		1116.0	1117.0	2.0	43.0			
	8400	BERN	4		1116.5	1117.0	1.0	53.0			
	2695	ATHN	4	S/F	1116.5	1117.1	2.3D	74			
	8800	SGMR	8	S	1116.5	1117.0	1.5	43			
	8800	ATHN	4	S/F	1116.5	1117.0	2.1	53			
	2695	SGMR	8	S	1116.8	1117.0	1.0D	71			
	2800	OTTA	1	S	1504.0	1505	2.0	2.0	1.0		
19	2800	OTTA	28	PRE	1237.0		9.0	9.2	5.0		
	2800	OTTA	46F	C	1246.0	1313	44.0	173.0	72.0		
	2695	SGMR	47	GB	1246.0	1256.0	70.5D	110			
	3200	BERN	45		1247.0	1317.5	70.0	75.0			
	8400	BERN	20		1247.0	1309.5	70.0D	91.0			
	8800	SGMR	47	GB	1247.8	1256.1	67.7D	39			
	2695	ATHN	4	S/F	1249.0	1313.1	52.5D	150			
	8800	ATHN	47	GB	1250.8	1309.8	52.0	89			
	2800	OTTA	30	PBI	1330.0	1330	230.0	29.0	11.2		
	2695	SGMR	4	S/F	1428.8	1430.8	3.3D	21			
	2800	OTTA	4	S/F	1429.0	1430.1	4.0	14.8	4.9		
	2800	OTTA	1	S	1921.0	1922.5	2.5	5.8	2.9		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
AUGUST 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
19	2695	PENT	20 GRF	2330.0	2415	100.0	11.0	5.5		
20	8800	LEAR	8 S	0012.5	0013.1	.8	20			
	8800	PALE	8 S	0012.6	0013.1	.7	21			
	2695	LEAR	4 S/F	0225.3	0227.0	6.0	07			
	2800	OTTA	240 R	1245.0	1330	45.0	4.2	2.1		
	2800	OTTA	1 S	1448.0	1453	8.0	3.2	1.6		
	2800	OTTA	21 GRF	1630.0	1740	220.0	8.2	4.1		
	2800	OTTA	1 S	1634.0	1634.3	4.0	8.4	4.0		
	2695	SGMR	4 S/F	1845.8	1846.5	6.8	26			
	8800	SGMR	4 S/F	1846.0	1847.5	6.3D	25			
	2800	OTTA	4 S/F	1846.2	1848	3.8	21.2	15.2		
	8800	PALE	8 S	1846.5	1846.6	1.1	33			
	2695	PALE	8 S	1847.1	1847.8	1.5	33			
	2800	OTTA	29 PBI	1850.0	1850	40.0	9.2	4.6		
	2695	PENT	24 R	2015.0	2035	20.0	4.6			
	2695	PENT	27A RF	2015.0		265.0	4.6	4.2		
	2800	OTTA	3 S	2032.8	2033.3	1.5	14.2	9.4		
	2695	PENT	24P R	2035.0		225.0	4.6			
21	2695	PENT	26 FAL	0020.0	0040	20.0	-4.6	-2.3		
	8800	MANI	4 S/F	0211.0	0213.0	5.0	340			
	4995	LEAR	4 S/F	0211.1	0213.6	6.2	110			
	8800	PALE	4 S/F	0212.1	0213.6	6.9	360			
	8800	LEAR	4 S/F	0212.1	0213.6	6.5	330			
	2695	LEAR	8 S	0213.3	0213.6	2.0	41			
	2695	PALE	8 S	0213.3	0213.6	.8	42			
	2695	LEAR	8 S	0410.8	0411.3	1.5	10			
	8800	LEAR	8 S	0411.0	0412.0	1.6	13			
	8800	LEAR	4 S/F	0529.1	0529.6	2.5	52			
	3200	BERN	3	0624.8	0625.5	3.0	29.0U			OPR
	2695	ATHN	4 S/F	0625.0	0625.6	4.8D	40			
	2695	MANI	4 S/F	0625.0	0625.6	3.0D	26			
	8800	LEAR	4 S/F	0625.3	0625.6	2.3	19			
	2695	LEAR	4 S/F	0625.3	0625.6	2.3	49			
	8800	LEAR	8 S	0721.6	0721.8	.7	18			
	8800	LEAR	8 S	0801.5	0801.8	1.5	09			
	2695	LEAR	8 S	0801.6	0801.8	.5	08			
	3200	BERN	46	0823.0	0831.0U	74.0	215.0D			OPR
	2695	ATHN	47 GB	0824.0	0838.5	59.5D	410			
	2695	LEAR	47 GB	0825.6	0830.6	13.9	340			
	8800	ATHN	47 GB	0826.3	0831.0	57.0	380			
	8800	LEAR	47 GB	0827.6	0830.1	11.9	570			
	8800	LEAR	47 GB	0839.5	0838.3	8.6	290			
	2695	LEAR	47 GB	0839.5	0843.3	8.6	180			
	8800	LEAR	47 GB	0902.0	0831.0	15.3	630			
	2695	LEAR	4 S/F	0902.0	0838.3	20.5	480			
	2800	OTTA	4 S/F	1305.0	1306	2.0	10.8	3.6		
	2695	ATHN	4 S/F	1305.1	1306.3	2.7D	13			
	2695	SGMR	8 S	1305.3	1306.0	1.8D	11			
	8800	ATHN	4 S/F	1305.3	1306.1	3.8	45			
	8800	SGMR	8 S	1305.3	1306.0	1.3	33			
	2800	OTTA	40 F	1323.0	1323.5	7.0	6.2			
	2800	OTTA	27A RF	1425.0		260.0	5.2	4.7		
	2800	OTTA	24 R	1425.0	1434	9.0	5.2	2.0		
	8800	SGMR	4 S/F	1427.5	1430.1	7.3	16			
	2800	OTTA	24P R	1434.0		206.0	5.2			
	2800	OTTA	40 F	1435.0	1441	11.0	47.0			
	2695	SGMR	4 S/F	1438.8	1440.8	2.5	58			
	3200	BERN	8	1440.0	1440.6	1.2	64.0U			OPR
	2800	OTTA	20 GRF	1455.0	1507	20.0	4.2	2.1		
	2800	OTTA	21 GRF	1650.0	1730	60.0	6.2	3.1		
	2800	OTTA	3 S	1654.0	1658.3	10.0	10.8	3.8		
	2800	OTTA	1 S	1714.0	1715	6.0	7.6	2.8		
	2695	SGMR	4 S/F	1714.1	1715.0	2.4D	05			
	2800	OTTA	26 FAL	1800.0	1845	45.0	-5.2	-3.0		
	2800	OTTA	21 GRF	2010.0	2125	135.0	7.0	4.0		
	2695	PENT	1 S	2013.0	2015	6.0	4.2	2.1		
	2695	PENT	20 GRF	2240.0	2315	190.0	15.0	8.0		
22	2695	LEAR	8 S	0125.6	0125.6	.2	11			
	2695	LEAR	8 S	0509.6	0509.8	.4	17			
	3200	BERN	1	0656.0	0657.8	6.0	8.0U			OPR
	8800	ATHN	4 S/F	0657.0	0657.6	2.1	33			
	8800	LEAR	8 S	0657.6	0657.8	.2	30			
	8800	LEAR	8 S	0801.5	0801.8	1.5	09			
	2695	LEAR	8 S	0801.6	0801.8	.5	08			
	8800	LEAR	8 S	0846.5	0846.8	.3	17			
	2800	OTTA	24 R	1230.0	1235	5.0	3.8	1.8		
	2800	OTTA	27 RF	1230.0		115.0	3.8	3.3		
	2800	OTTA	24P R	1235.0		85.0	3.8			
	2800	OTTA	26 FAL	1400.0	1425	25.0	-3.8			
	2695	SGMR	4 S/F	1453.6	1455.3	5.0	18			
	3200	BERN	1	1453.7	1455.0	6.0	16.0U			OPR
	2800	OTTA	3 S	1453.8	1455	4.2	17.8	8.9		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
AUGUST 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
22	2800	OTTA	2Ø PBI	1458.Ø	1458	5Ø.Ø	6.2	3.1		
	2800	OTTA	2Ø GRF	1645.Ø	1705	55.Ø	3.8	2.2		
	2800	OTTA	8 S	1749.5	1750	.8	11.5	5.7		
	2800	OTTA	29 PBI	1750.3	1750.3	25.Ø	2.6	1.3		
23	2800	OTTA	2Ø GRF	1550.Ø	1625	6Ø.Ø	3.2			
	2800	OTTA	2Ø GRF	1730.Ø	1825	170.Ø	9.8	4.9		
	2800	OTTA	1 S	2114.Ø	2110	1Ø.Ø	5.2	2.6		
24	3200	BERN	1	Ø945.Ø	Ø945.3	2.Ø	6.Ø			OPR
	2800	OTTA	240 R	1400.Ø	1540	100.Ø	8.8	4.4		
	2800	OTTA	21 GRF	1730.Ø	2210	330.Ø	10.8	5.4		
	2695	SGMR	4 S/F	1841.8	1842.3	2.7D	39			
	2800	OTTA	3 S	1841.8	1842.2	2.Ø	30.Ø	10.Ø		
	2800	OTTA	1 S	2021.5	2023	6.Ø	5.Ø	2.5		
	2695	PENT	2Ø GRF	2345.Ø	2405	85.Ø	4.8	2.4		
25	3200	BERN	4	Ø717.1	Ø723.6	12.Ø	29.Ø			OPR
	2800	OTTA	1 S	1435.Ø	1437	6.Ø	7.Ø	3.3		
	2800	OTTA	21 GRF	1607.Ø	1625	55.Ø	5.Ø	2.5		
	2800	OTTA	1 S	1608.5	1609	2.Ø	4.6	2.3		
	2800	OTTA	24ØFR	1805.Ø	1826	21.Ø	5.Ø			
	2800	OTTA	21 GRF	1827.Ø	1910	110.Ø	5.Ø			
	2800	OTTA	8 S	1828.7	1828.9	.3	9.2			
	2800	OTTA	1 S	1943.Ø	1943.7	4.5	7.2	3.6		
	2800	OTTA	240 R	2050.Ø	2100	1Ø.Ø	3.8	1.9		
26	2695	LEAR	47 GB	Ø332.1	Ø333.6	14.2	46			
	8800	LEAR	47 GB	Ø333.6	Ø334.5	12.7	2Ø			
	8800	LEAR	4 S/F	Ø346.3	Ø349.8	16.3	33			
	2695	LEAR	4 S/F	Ø346.3	Ø333.6	16.3	46			
	3200	BERN	Ø	1021.Ø	1022.Ø	3.Ø	9.Ø			OPR
	2800	OTTA	21 GRF	1515.Ø	1550	125.Ø	5.4	2.7		
	2800	OTTA	1 S	1619.3	1619.5	1.5	9.Ø	4.Ø		
	2800	OTTA	2Ø GRF	1915.Ø	1930	75.Ø	4.6	2.3		
	2800	OTTA	4 S/F	2113.Ø	2114	3.Ø	12.Ø	5.Ø		
	2695	PENT	240 R	2335.Ø	2350	15.Ø	4.6	2.3		
27	2695	PENT	2Ø GRF	ØØ15.Ø	Ø115	100.ØD	16.2			
	8800	LEAR	8 S	Ø235.1	Ø235.5	1.2	11			
	2695	LEAR	8 S	Ø235.3	Ø235.5	.3	19			
	8800	LEAR	4 S/F	Ø3Ø3.Ø	Ø3Ø4.5	3.1	23			
	2695	LEAR	4 S/F	Ø3Ø3.Ø	Ø3Ø4.6	3.1	31			
	8800	MANI	8 S	Ø3Ø4.1	Ø3Ø4.8	.9	2Ø			
	2695	MANI	8 S	Ø3Ø4.1	Ø3Ø4.8	.9D	23			
	2695	LEAR	8 S	Ø311.5	Ø311.8	.5	11			
	8800	LEAR	4 S/F	Ø410.ØE	Ø417.Ø	12.8	13Ø			
	2695	LEAR	4 S/F	Ø411.ØE	Ø42Ø.1	11.Ø	119			
	8800	LEAR	4 S/F	Ø553.1	Ø554.6	6.Ø	19Ø			
	8800	ATHN	4 S/F	Ø553.1	Ø554.8	5.9	13Ø			
	2695	ATHN	4 S/F	Ø553.1	Ø556.5	6.ØD	74			
	2695	LEAR	4 S/F	Ø553.8	Ø556.1	4.Ø	51			
	2800	OTTA	21 GRF	1240.Ø	1304	6Ø.Ø	5.4	2.7		
	2800	OTTA	1 S	1248.Ø	1249	3.Ø	5.2	2.6		
	2800	OTTA	2Ø GRF	1645.Ø	1700	45.Ø	6.4	3.6		
	2800	OTTA	21 GRF	1750.Ø	2050	420.Ø	12.4			
	2800	OTTA	1 S	1907.Ø	1907.7	3.Ø	8.8	4.4		
	2800	OTTA	1 S	2213.5	2214	2.5	9.8	3.2		
28	2695	PENT	3 S	Ø137.Ø	Ø137.4	1.Ø	11.6	5.8		
	2695	LEAR	8 S	Ø137.Ø	Ø137.3	1.Ø	16			
	8800	LEAR	4 S/F	Ø137.Ø	Ø137.6	3.3	Ø8			
	8800	MANI	4 S/F	Ø343.5	Ø346.1	4.5	21Ø			
	2695	MANI	4 S/F	Ø344.Ø	Ø346.1	4.ØD	42			
	8800	LEAR	47 GB	Ø344.1	Ø344.3	4.5	16			
	2695	LEAR	4 S/F	Ø344.8	Ø346.3	3.7	53			
	8800	PALE	4 S/F	Ø345.5	Ø347.8	2.5	27			
	2800	OTTA	8 S	1146.8	1146.9	.2	5.2			
	2695	SGMR	4 S/F	1214.1	1414.5	2.9D	Ø8			
	2800	OTTA	1 S	1214.5	1214.7	1.Ø	6.6	3.3		
	3200	BERN	3	1408.3	1409.Ø	2.Ø	11.Ø			OPR
	2695	SGMR	8 S	1408.5	1409.1	1.8D	11			
	2800	OTTA	22 GRF	1424.Ø	1432	2Ø.Ø	15.4	7.Ø		
	3200	BERN	3	1507.5	1508.Ø	8.Ø	34.Ø			OPR
	2695	ATHN	4 S/F	1507.6	1508.3	9.2D	43			
	8800	ATHN	4 S/F	1507.6	1508.3	9.2	51			
	2695	SGMR	8 S	1507.6	1508.1	1.4D	47			
	8800	SGMR	8 S	1507.8	1508.1	.8D	37			
	2800	OTTA	3 S	1507.9	1508.2	1.5	46.Ø	16.Ø		
	2800	OTTA	1 S	1512.Ø	1512.5	2.5	5.2	2.6		
	2800	OTTA	4 S/F	1722.Ø	1725	6.Ø	1Ø.2	2.8		
	2800	OTTA	2Ø GRF	1837.Ø	1841	11.Ø	6.2	3.Ø		
	2800	OTTA	2 S/F	1858.Ø	1859	4.Ø	6.2	3.Ø		
	2800	OTTA	8 S	1920.Ø	1920.1	.4	6.6			
	2800	OTTA	2 S/F	1923.Ø	1923.6	1.Ø	6.6			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
28	2800	OTTA	1 S	2001.2	2001.7	1.0	6.6	3.3		
	2800	OTTA	21 GRF	2017.0	2018	20.0	7.6	3.8		
	2800	OTTA	4 S/F	2029.0	2029.5	1.0	34.0			
29	2695	LEAR	8 S	0453.1	0454.0	2.0	11			
	8800	LEAR	8 S	0453.3	0454.1	1.0	11			
	8800	LEAR	47 GB	0633.1	0635.3	13.5	19			
	2695	LEAR	4 S/F	0644.6	0644.6	569.2	11			
	8800	ATHN	4 S/F	0758.8	0759.6	2.3	49			
	3200	BERN	3	0759.0	0759.5	2.0	17.0			OPR
	8800	LEAR	8 S	0759.1	0759.6	1.4	77			
	2695	LEAR	8 S	0759.1	0759.8	1.2	24			
	2695	ATHN	8 S	0759.6	0759.6	1.5D	15			
	2800	OTTA	21 GRF	1302.0		18.0	5.2	4.0		
	3200	BERN	4	1303.0	1304.1	2.0	28.0			OPR
	2695	SGMR	8 S	1303.5	1304.5	1.5D	32			
	8800	SGMR	8 S	1304.0	1304.6	1.6D	44			
	2800	OTTA	3 S	1304.0	1304.5	1.2	31.0	15.0		
	2695	ATHN	4 S/F	1335.3	1337.3	4.0D	33			
	2800	OTTA	2 S/F	1336.0	1337	3.0	3.6	1.8		
	8800	SGMR	4 S/F	1336.1	1337.5	4.0D	43			
	8800	ATHN	4 S/F	1336.3	1337.6	3.0	13			
	2695	SGMR	4 S/F	1336.5	1337.1	2.1D	06			
	3200	BERN	3	1554.5	1554.8	2.0	11.0			OPR
	2800	OTTA	3 S	1554.5	1555	2.0	15.6	5.2		
	2800	OTTA	260 FAL	1600.0	1620	20.0	-8.0	-4.0		
	2800	OTTA	23 GRF	1810.0	2050	280.0D	38.0			
	2800	OTTA	1 S	1857.0	1857.7	1.0	8.4	4.2		
	2800	OTTA	46F C	1947.0	1951.5	60.0	320.0	99.0		
	2695	PALE	47 GB	1948.6	1956.1	59.9	330			
	8800	PALE	4 S/F	1954.1	1957.1	17.4	90			
30	8800	LEAR	4 S/F	0119.8	0120.3	3.8	27			
	8800	PALE	8 S	0120.1	0120.3	.5	27			
	2695	LEAR	8 S	0120.6	0120.6	.2	07			
	2695	LEAR	8 S	0306.0	0306.1	1.1	20			
	8800	LEAR	4 S/F	0329.5	0330.8	5.8	26			
	2695	LEAR	4 S/F	0330.0	0330.3	2.1	10			
	2695	ATHN	4 S/F	0908.3	0910.3	3.7D	16			
	8800	LEAR	4 S/F	0908.6	0909.8	3.9	100			
	3200	BERN	4	0908.8	0910.0	4.0	28.0			OPR
	2695	LEAR	4 S/F	0908.8	0910.3	3.0	23			
	8800	ATHN	4 S/F	0909.1	0909.8	5.2	76			
	3200	BERN	4	1137.0	1138.7	4.0	110.0			OPR
	2800	OTTA	240AR	1137.0	1142	5.0	13.0			
	8800	SGMR	4 S/F	1137.1	1139.1	3.5D	210			
	2800	OTTA	3 S	1138.0	1139	3.0	138.0	46.0		
	8800	ATHN	4 S/F	1138.1	1140.1	19.0	180			
	2695	SGMR	8 S	1254.5	1255.1	2.0D	28			
	2800	OTTA	3 S	1255.0	1255.2	2.0	26.0	7.0		
	2800	OTTA	21 GRF	1320.0	1347	120.0	7.4	3.7		
	8800	SGMR	8 S	1338.0	1338.5	1.8	11			
	8800	ATHN	8 S	1338.1	1338.5	1.5	29			
	2800	OTTA	3 S	1444.0	1444.7	2.0	13.0	4.4		
	8800	PALE	8 S	1722.6	1722.8	.4	19			
	2800	OTTA	8 S	1801.9	1802.1	.5	9.4			
	2800	OTTA	20 GRF	1810.0	1820	20.0	3.2			
	2695	SGMR	4 S/F	1848.8	1849.6	3.3D	119			
	2800	OTTA	3 S	1849.0	1849.8	3.0	94.0	25.0		
	2800	OTTA	21 GRF	1849.0	1914	65.0	7.8	3.9		
	2695	PALE	8 S	1849.3	1849.8	1.5	110			
	8800	SGMR	8 S	1849.5	1850.3	1.8	13			
	8800	PALE	8 S	1849.8	1850.0	.3	20			
	2800	OTTA	8 S	1951.2	1951.2	.1	15.5			
	2800	OTTA	40 F	2202.0	2203.5	3.0	6.8			
	2695	PENT	20 GRF	2310.0	2405	75.0	4.2	2.1		
31	8800	LEAR	8 S	0107.8	0108.0	.3	21			
	8800	LEAR	4 S/F	0515.3	0515.6	2.3	15			
	2695	LEAR	8 S	0550.3	0550.8	1.5	16			
	2695	LEAR	4 S/F	0722.6	0723.3	5.7	10			
	2695	ATHN	4 S/F	0722.6	0723.5	4.5D	13			
	8800	LEAR	47 GB	0722.8	0723.3	5.0	38			
	3200	BERN	4	0955.7	0957.5	5.0	41.0			OPR
	2800	OTTA	240 R	1255.0	1320	25.0	6.8	4.6		
	2800	OTTA	21 GRF	1340.0	1800	390.0	18.6			
	3200	BERN	3	1349.5	1354.0	8.0	18.0			OPR
	2800	OTTA	3 S	1351.0	1354.2	7.0	11.2	3.8		
	2695	SGMR	4 S/F	1353.0	1354.3	3.3D	11			
	8800	SGMR	4 S/F	1353.0	1354.3	3.5	21			
	8800	SGMR	4 S/F	1540.3	1540.6	2.2	18			
	2800	OTTA	4 S/F	1748.2	1750	4.0	31.6	15.8		
	2695	SGMR	4 S/F	1748.3	1749.8	4.2D	31			
	2800	OTTA	1 S	1928.3	1929.2	2.0	6.4	2.8		
	2800	OTTA	1 S	1949.5	1950.5	1.5	2.2	1.1		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

AUGUST 1981

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
31	8800	PALE	8 S	2010.1	2010.3	.5	30			
	8800	PALE	8 S	2014.8	2015.0	.7	28			
	2800	OTTA	20 GRF	2030.0	2036	25.0	3.0	2.0		
	8800	PALE	8 S	2058.5	2058.6	.3	70			
	2800	OTTA	1 S	2213.5	2214	3.0	4.0	1.8		

Observatories:

BERN = Berne MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill
LEAR = Learmonth ATHN = Athens PALE = Palehua

Explanation of Type Code:

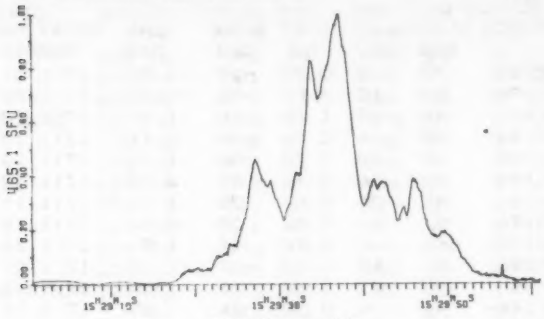
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

SELECTED SOLAR NOISE BURSTS

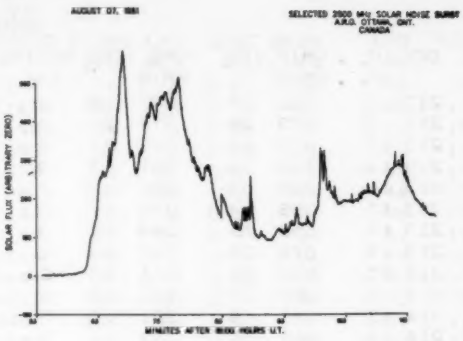
AUGUST 4-11, 1981

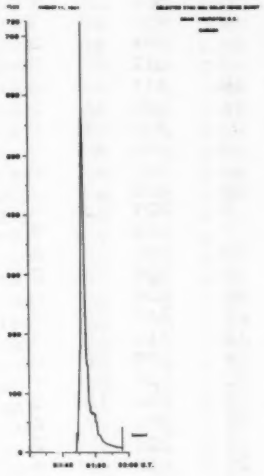
INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

I19.6, F=19.6 GHZ, BW=600.0 MHZ, T=0.1 SEC



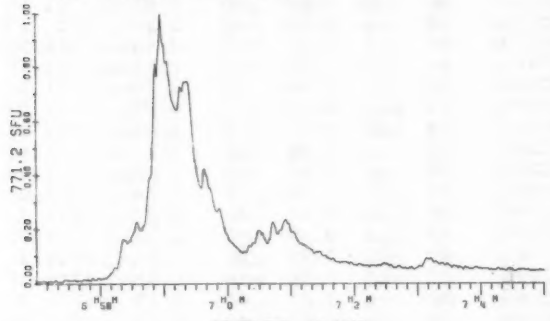
UT ON AUG. 4 1981





INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

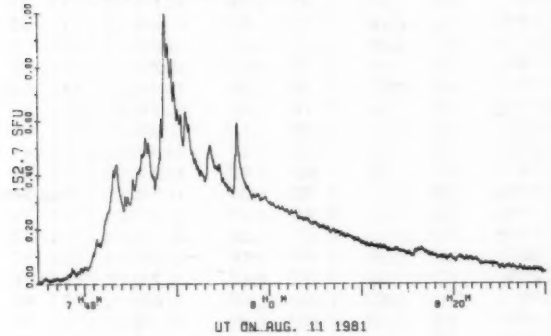
I 8.4, F=8.4 GHZ, BW=6.0 MHZ, T=1.0 SEC



UT ON AUG. 10 1981

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

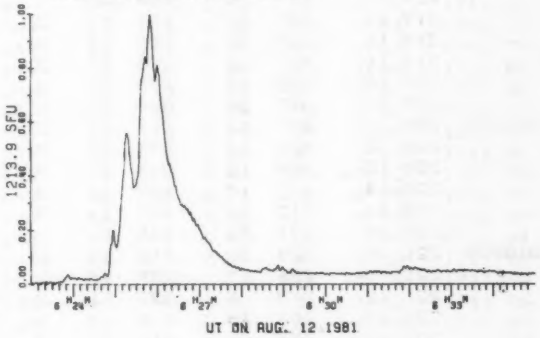
I 5.2, F=5.2 GHZ, BW=100.0 MHZ, T=1.0 SEC



UT ON AUG. 11 1981

INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERNE, SWITZERLAND

I11.8, F=11.8 GHZ, BW=250.0 MHZ, T=1.0 SEC



UT ON AUG. 12 1981

SOLAR WIND

Interplanetary Scintillations

AUGUST 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
810801	213	0	360	44	397	69	2	3C283	77	0	0.98	-15	-1.30	1711.21
	213	2	353	28	375	23	3	3C298	82	10	1.00	-16	-1.26	1711.20
	213	13	370	10	348	52	2	3C48	94	13	1.06	16	1.49	1711.13
	213	14	415	16	381	15	3	3C144-	45	6	0.71	46	2.11	1711.13
	213	16	333	33	330	13	2	3C147	49	30	0.75	36	1.31	1711.12
	213	17	388	14	376	11	4	3C144	46	6	0.72	45	2.02	1711.12
	213	18	358	15	399	50	3	3C161	42	-25	0.67	38	1.09	1711.14
	213	19	378	85	369	32	2	3C196	31	57	0.52	38	0.46	1711.18
	213	20	362	25	364	23	2	3C144+	46	6	0.72	45	1.91	1711.12
810802	214	2	369	17	412	13	2	3C298	81	10	1.00	-17	-1.33	1711.25
	214	13	315	8	321	17	3	3C48	95	13	1.07	15	1.52	1711.13
	214	14	366	14	363	14	3	3C144-	46	6	0.72	44	1.89	1711.15
	214	16	350	35	359	27	2	3C147	50	30	0.77	35	1.35	1711.16
	214	17	370	9	366	9	4	3C144	46	6	0.72	44	1.87	1711.15
	214	18	476	16	453	15	3	3C161	43	-24	0.68	37	1.55	1711.21
	214	19	379	16	396	16	3	3C144+	47	6	0.73	44	1.98	1711.16
810803	215	2	306	13	312	51	2	3C298	80	10	0.99	-16	-1.31	1711.25
	215	13	313	10	411	13	3	3C48	96	13	1.07	15	1.56	1711.17
	215	14	432	16	436	16	3	3C144-	47	6	0.73	44	2.13	1711.21
	215	16	393	35	429	25	2	3C147	50	29	0.77	35	1.48	1711.22
	215	17	462	12	456	12	3	3C144	47	6	0.73	43	2.11	1711.22
	215	18	450	16	467	17	3	3C161	44	-24	0.69	38	1.55	1711.24
	215	19	510	29	472	19	2	3C144+	48	6	0.74	43	2.26	1711.23
	215	23	363	14	329	13	2	3C273	56	6	0.83	-34	-3.46	1711.39
810804	216	12	290	9	303	10	3	3C48	97	13	1.08	15	1.61	1711.18
	216	14	492	18	490	18	4	3C144-	48	6	0.74	42	2.20	1711.26
	216	17	384	16	436	26	2	3C144	48	6	0.74	43	1.97	1711.23
	216	17	410	34	508	25	2	3C161	44	-23	0.69	38	1.45	1711.27
810805	217	0	478	62	447	70	2	3C283	73	0	0.96	-17	-1.47	1711.40
	217	2	400	13	410	17	3	3C298	78	10	0.98	-16	-1.32	1711.38
	217	12	374	34	298	28	2	3C48	98	13	1.08	15	1.54	1711.27
	217	14	534	23	538	36	4	3C144-	49	6	0.75	42	2.27	1711.30
	217	17	567	18	546	18	3	3C144	49	6	0.75	42	2.32	1711.31
	217	18	421	71	391	24	2	3C161	45	-22	0.71	36	1.41	1711.31
810806	218	2	287	11	320	25	2	3C298	77	11	0.98	-16	-1.41	1711.35
	218	14	481	26	455	18	4	3C144-	50	6	0.77	40	2.12	1711.33
	218	17	478	14	478	14	3	3C144	50	6	0.77	40	2.09	1711.34
	218	19	482	29	458	22	2	3C144+	50	6	0.77	40	2.12	1711.34
810807	219	2	290	14	279	16	2	3C298	76	11	0.97	-17	-1.49	1711.39
	219	12	375	30	444	123	2	3C48	99	13	1.09	16	1.63	1711.35
	219	14	423	17	422	17	3	3C144-	51	6	0.78	40	2.04	1711.35
	219	16	269	30	323	37	2	3C147	54	26	0.81	32	1.04	1711.30
	219	16	401	16	395	20	3	3C144	51	6	0.78	40	1.95	1711.35
	219	18	500	64	478	61	2	3C161	46	-21	0.72	36	1.66	1711.40
	219	19	392	34	390	33	2	3C144+	51	6	0.78	40	1.92	1711.35
810808	220	0	297	12	319	45	2	3C283	70	0	0.94	-18	-1.80	1711.44
	220	2	406	17	379	29	2	3C298	75	11	0.97	-17	-1.48	1711.49
	220	12	388	13	365	14	3	3C48	100	13	1.09	15	1.57	1711.39
	220	14	417	17	403	16	3	3C144-	52	6	0.79	39	1.98	1711.39
	220	16	412	15	425	16	3	3C144	52	6	0.79	39	1.92	1711.39
	220	19	491	43	445	51	2	3C144+	52	6	0.79	39	2.12	1711.42
810809	221	0	329	18	412	16	2	3C283	69	0	0.93	-19	-1.87	1711 50
	221	1	286	15	299	15	2	3C298	75	11	0.97	-17	-1.51	1711.46
	221	12	343	8	322	12	3	3C48	101	13	1.10	15	1.62	1711.40
	221	14	406	15	418	15	3	3C144-	53	6	0.80	38	1.93	1711.42
	221	16	434	13	416	13	3	3C144	53	6	0.80	37	1.93	1711.44
	221	17	609	28	618	26	3	3C161	48	-19	0.74	35	1.79	1711.49
	221	19	521	41	520	51	2	3C144+	53	6	0.80	38	2.11	1711.46
	221	23	410	18	400	17	3	3C273	50	7	0.77	-39	-4.08	1711.66
810810	222	0	582	128	534	65	2	3C283	68	-1	0.93	-20	-1.76	1711.63
	222	2	465	8	471	11	4	3C298	74	11	0.96	-16	-1.43	1711.59
	222	12	437	22	449	25	3	3C48	102	13	1.10	15	1.50	1711.48
	222	14	420	14	428	14	4	3C144-	54	6	0.81	36	1.86	1711.47
	222	15	501	59	448	53	2	3C147	56	25	0.83	31	1.67	1711.50

SOLAR WIND

Interplanetary Scintillations

AUGUST 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	222	16	492	13	488	13	3	3C144	54	6	0 81	36	1.98	1711.49
	222	17	581	19	500	16	3	3C161	48	-18	0.74	35	1.80	1711.52
	222	19	499	21	484	20	2	3C144+	54	6	0.81	37	2.03	1711.49
810811	223	0	440	17	473	54	2	3C283	67	-1	0.92	-21	-1.96	1711.63
	223	2	438	11	486	13	3	3C298	73	11	0.96	-16	-1.45	1711.61
	223	12	472	10	553	47	3	3C48	103	13	1.11	14	1.44	1711.53
	223	14	393	19	454	20	3	3C144-	55	6	0.82	36	1.86	1711.49
	223	15	436	64	425	27	2	3C147	57	24	0.84	30	1.57	1711.52
	223	16	461	36	477	22	4	3C144	55	6	0.82	36	1.95	1711.52
	223	19	506	105	485	23	2	3C144+	55	6	0.82	35	1.93	1711.54
	223	20	449	144	356	50	2	3C216	28	60	0.47	42	0.93	1711.56
810812	224	12	416	16	386	53	3	3C48	104	13	1.11	15	1.59	1711.55
	224	14	421	41	417	21	3	3C144-	56	6	0.83	35	1.87	1711.54
	224	16	484	34	492	17	3	3C144	56	6	0.83	34	1.91	1711.56
	224	17	411	31	422	53	3	3C161	50	-17	0.77	33	1.38	1711.56
810813	225	15	547	*	500	*	2	3C147	58	23	0.85	28	1.60	1711.63
	225	16	371	*	373	*	2	3C144	57	6	0.84	34	1.73	1711.57
810814	226	2	267	54	357	17	2	3C298	70	12	0.94	-19	-1.89	1711.64
	226	13	371	45	442	30	2	3C144-	58	6	0.85	33	1.73	1711.60
	226	17	549	72	489	48	2	3C161	51	-16	0.78	33	1.69	1711.66
810815	227	13	506	63	449	29	2	3C144-	59	6	0.86	32	1.85	1711.68
	227	16	484	36	457	41	2	3C144	59	6	0.86	32	1.84	1711.68
	227	19	596	25	614	26	2	3C144+	59	6	0.86	32	1.95	1711.70
	227	23	318	24	286	19	2	3C283	63	-2	0.89	-26	-2.67	1711.78
810816	228	2	349	43	429	49	3	3C298	68	13	0.93	-21	-2.00	1711.78
	228	12	641	13	663	16	3	3C48	107	13	1.12	13	1.34	1711.76
	228	13	475	25	467	25	3	3C144-	60	6	0.87	31	1.76	1711.71
	228	15	502	112	385	14	2	3C147	61	22	0.87	26	1.45	1711.73
	228	16	486	13	489	13	3	3C144	60	6	0.87	31	1.78	1711.72
	228	18	473	24	560	36	2	3C144+	60	6	0.87	31	1.75	1711.72
	228	23	411	19	382	55	2	3C283	62	-2	0.88	-26	-2.56	1711.86
810817	229	2	403	9	412	9	3	3C298	67	13	0.92	-22	-2.04	1711.84
	229	12	437	38	443	14	2	3C48	108	13	1.13	15	1.65	1711.74
	229	13	435	26	428	25	2	3C144-	61	6	0.87	29	1.63	1711.74
	229	16	462	15	452	20	3	3C144	61	6	0.87	30	1.73	1711.75
	229	17	409	28	379	26	2	3C161	54	-14	0.81	30	1.36	1711.74
	229	18	362	24	275	18	2	3C196	40	40	0.64	42	1.30	1711.73
	229	22	332	15	280	25	2	3C273	43	9	0.68	-48	-5.45	1711.96
	229	23	361	12	354	12	3	3C283	61	-3	0.87	-27	-2.73	1711.88
810818	230	1	270	21	392	18	2	3C298	66	14	0.91	-23	-2.35	1711.80
	230	12	509	39	524	24	3	3C48	109	13	1.13	14	1.50	1711.80
	230	13	386	19	428	21	3	3C144-	62	6	0.88	28	1.54	1711.76
	230	16	464	15	462	15	4	3C144	62	6	0.88	29	1.67	1711.79
	230	18	488	27	453	25	3	3C144+	62	6	0.88	28	1.64	1711.80
810819	231	1	310	26	395	29	2	3C298	66	14	0.91	-24	-2.37	1711.88
	231	12	242	44	227	9	2	3C48	110	13	1.14	13	2.01	1711.67
	231	13	406	26	437	42	3	3C144-	63	6	0.89	29	1.63	1711.80
	231	16	460	21	460	24	3	3C144	63	6	0.89	27	1.56	1711.82
	231	23	295	68	307	93	2	3C283	59	-3	0.86	-29	-3.13	1711.93
810820	232	1	437	37	308	52	2	3C298	65	14	0.91	-24	-2.29	1711.97
	232	13	653	42	449	28	2	3C144-	64	7	0.90	27	1.70	1711.90
	232	15	400	16	394	15	3	3C144	64	7	0.90	26	1.49	1711.84
	232	18	471	44	533	50	2	3C144+	64	7	0.90	27	1.58	1711.87
810821	233	2	258	40	371	64	2	3C298	64	15	0.90	-26	-2.74	1711.92
	233	13	371	24	361	24	2	3C144-	65	7	0.91	26	1.42	1711.86
	233	15	367	15	355	15	3	3C144	65	7	0.91	26	1.45	1711.87
	233	23	331	24	388	27	2	3C283	57	-4	0.84	-31	-3.27	1712.03
810822	234	1	419	22	422	10	2	3C298	63	15	0.89	-26	-2.47	1712.05
	234	11	271	57	458	46	2	3C48	113	13	1.15	13	2.00	1711.81
	234	13	365	17	368	14	3	3C144-	66	7	0.91	25	1.42	1711.90
	234	14	448	*	415	*	2	3C147	66	19	0.91	22	1.30	1711.94
	234	15	382	14	378	14	3	3C144	66	7	0.91	25	1.42	1711.91
	234	16	382	25	374	17	2	3C161	58	-11	0.85	28	1.34	1711.92

SOLAR WIND
Interplanetary Scintillations

AUGUST 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
810823	235	1	378	14	455	23	3	3C298	62	15	0.88	-27	-2.65	1712.07
	235	11	395	84	347	9	2	3C48	114	13	1.16	13	1.65	1711.94
	235	13	358	14	379	22	3	3C144-	66	7	0.91	25	1.39	1711.93
	235	16	446	9	449	9	4	3C144	67	7	0.92	24	1.43	1711.97
	235	17	622	92	415	38	2	3C161	58	-10	0.85	27	1.55	1712.01
	235	22	539	103	402	65	2	3C273	37	10	0.60	-54	-5.50	1712.26
810824	236	1	443	15	421	54	2	3C298	61	16	0.87	-28	-2.69	1712.14
	236	11	466	11	470	57	2	3C48	114	13	1.16	14	1.61	1712.00
	236	13	396	14	394	14	3	3C144-	67	7	0.92	23	1.36	1711.99
	236	15	389	11	383	13	3	3C144	68	7	0.93	23	1.35	1711.99
	236	17	388	23	387	11	3	3C161	59	-10	0.86	26	1.27	1711.99
	236	18	381	16	386	16	2	3C144+	68	7	0.93	24	1.40	1711.99
810825	237	13	411	19	425	75	3	3C144-	68	7	0.93	22	1.31	1712.03
	237	15	369	16	360	25	4	3C144	68	7	0.93	23	1.32	1712.02
	237	17	393	15	372	22	3	3C161	60	-9	0.87	25	1.25	1712.03
810826	238	13	430	42	447	45	2	3C144-	69	7	0.93	21	1.28	1712.08
	238	14	344	*	303	*	2	3C147	69	17	0.93	20	1.11	1712.05
	238	16	312	19	328	65	2	3C161	61	-9	0.87	25	1.08	1712.03
	238	22	247	13	221	11	2	3C273	34	11	0.56	-56	-7.61	1712.30
	238	23	376	22	357	39	2	3C283	52	-5	0.79	-34	-3.66	1712.25
810827	239	1	518	57	440	63	2	3C298	58	17	0.85	-30	-2.83	1712.28
	239	11	291	31	398	39	2	3C48	117	13	1.17	13	2.02	1712.01
	239	13	391	16	427	17	3	3C144-	70	7	0.94	19	1.15	1712.10
	239	14	459	*	455	*	2	3C147	70	17	0.94	18	1.10	1712.13
	239	15	330	44	335	18	2	3C144	70	7	0.94	22	1.26	1712.07
	239	16	372	47	381	22	2	3C161	61	-8	0.87	25	1.21	1712.10
	239	17	411	50	290	23	2	3C196	47	32	0.73	39	1.69	1712.10
	239	18	391	15	407	16	2	3C144+	71	7	0.95	20	1.23	1712.11
	239	21	304	25	295	24	2	3C273	33	11	0.54	-57	-7.11	1712.37
810828	240	1	401	21	411	11	2	3C298	57	17	0.84	-31	-3.13	1712.28
	240	11	442	37	500	50	2	3C48	118	13	1.17	13	1.70	1712.14
	240	13	370	12	368	12	3	3C144-	71	7	0.95	20	1.18	1712.13
	240	14	424	16	433	17	2	3C147	71	16	0.95	18	1.07	1712.16
	240	15	404	11	379	11	3	3C144	71	7	0.95	19	1.15	1712.15
	240	16	317	10	317	10	3	3C161	62	-8	0.88	24	1.10	1712.11
	240	18	372	23	333	20	3	3C144+	72	7	0.95	19	1.13	1712.14
	240	18	349	39	329	13	2	3C216	38	40	0.62	46	1.41	1712.12
	240	21	501	36	400	76	2	3C273	32	11	0.53	-58	-6.21	1712.46
810829	241	1	386	23	342	35	2	3C298	57	18	0.84	-33	-3.31	1712 32
	241	11	377	9	335	8	3	3C48	119	13	1.18	12	1.73	1712.15
	241	13	405	18	387	17	3	3C144-	72	7	0.95	19	1.16	1712.18
	241	14	368	29	397	75	2	3C147	72	16	0.95	16	0.93	1712.17
	241	15	378	19	381	13	3	3C144	72	7	0.95	19	1.14	1712.18
	241	16	340	15	348	31	2	3C161	63	-7	0.89	23	1.12	1712.16
	241	18	359	21	356	16	2	3C144+	72	7	0.95	18	1.11	1712.17
	241	18	552	18	504	102	2	3C216	38	39	0.62	47	2.24	1712.20
	241	22	274	*	376	*	2	3C273	31	12	0.52	-59	-7.78	1712.44
	241	22	230	*	282	*	2	3C283	50	-7	0.77	-37	-4.76	1712.29
810830	242	1	351	62	273	12	2	3C298	56	18	0.83	-34	-3.48	1712.34
	242	11	328	8	430	103	2	3C48	120	13	1.18	12	1.90	1712.15
	242	13	298	13	348	15	3	3C144-	73	7	0.96	19	1.10	1712.16
	242	15	336	18	388	30	3	3C144	73	7	0.96	18	1.05	1712.19
	242	16	561	61	462	13	2	3C161	64	-7	0.90	23	1.38	1712.26
	242	18	438	32	357	35	2	3C144+	73	7	0.96	19	1.21	1712.24
	242	18	531	108	494	25	2	3C216	39	38	0.63	45	2.10	1712.23
	242	22	229	19	249	30	2	3C283	49	-7	0.75	-38	-4.94	1712.33
810831	243	0	430	14	376	50	2	3C298	55	19	0.82	-34	-3.42	1712.41
	243	11	324	12	350	57	2	3C48	121	13	1.18	12	1.91	1712.18
	243	13	367	17	377	17	3	3C144-	74	7	0.96	18	1.14	1712.24
	243	15	372	32	415	12	2	3C144	74	7	0.96	18	1.13	1712.24
	243	16	466	32	405	25	2	3C161	65	-6	0.91	22	1.23	1712.28
	243	18	295	41	307	107	2	3C144+	74	7	0.96	18	1.12	1712.20
	243	22	516	29	454	65	2	3C283	48	-7	0.74	-39	-3.91	1712.49

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

PIONEER XII

AUGUST 1981

DATE Aug '81	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H+} (x10^6°K)
1	0939	105.	381.	15.2	0.046
2	0419		366.	14.9	.066
3	0414		338.	46.4	.018
4	1706		295.	39.7	.079
5	0500		362.	77.3	.058
6	0413		303.	30.3	.034
7	0745		466.	21.2	.414
8	0436		434.	8.7	.035
9	0419		344.	27.5	.037
10	0428		458	40.3	.059
11	0426		421.	12.3	.089
12	0456		490.	8.6	.093
13	0446		406.	11.7	.078
14	0527		463.	55.3	.058
15	0409	096.	390.	67.2	.034
16	0449		363.	57.9	.03
17	0305		366.	26.9	.118
18	0358		375.	19.3	.245
19	0338		388.	12.3	.18
20	0456		402.	12.5	.259
21	0340		388.	25.	.068
22	0446		424.	11.4	.127
23	0525		446.	34.8	.182
24	0419		450.	10.8	.056
25	0501		416.	11.1	.11
26	1654		406.	8.6	.141
27	1715		401.	5.4	.123
28	0503		374.	5.4	.198
29	0438		350.	22.8	.023
30	0439		355.	38.8	.018
31	0447		386.	12.2	.104

INFERRED IP MAGNETIC FIELD

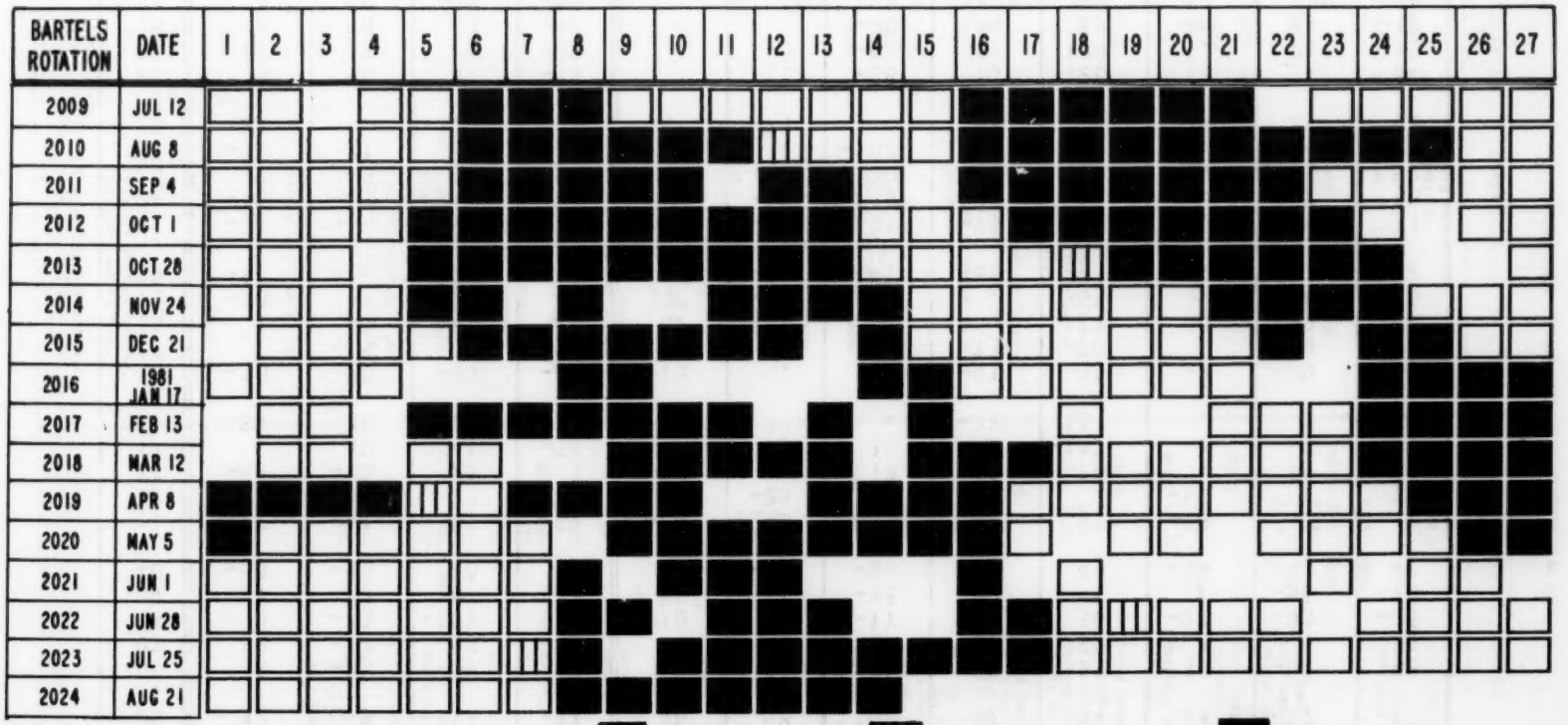
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2006	APR 27		AT			AT -						TA	AT		TA			TA AT	AT						TA	AT	*	TA
2007	MAY 24			AT	AT			*	* -	-	-	- -	TA		AT				*	TA		-	TA		TA		- TA	
2008	JUN 20		-				AT		-	-					-	-							TA		TA		TA	
2009	JUL 17		-	AT		-						-			TA TA		-	AT AT			-		-	-	-	- A*	-	-
2010	AUG 13		AT					-	AT -							-		- AT					TA		-	A*		
2011	SEP 9							TA	AT						TA	TA										TA		
2012	OCT 6							*		TA	TA		AT A*		A*							TA			TA			
2013	NOV 2	AT					TA	TA				AT A*									-	TA -	AT			TA		
2014	NOV 29				-					-	-				TA		TA TA		AT	-		AT			-		TA	
2015	DEC 26									-	-				-	TA -	TA -	-	-	-	-	-	-	AT	AT	-	-	-
2016	1981 JAN 22	TA -			AT T*		-		-	AT	TA				TA					-				AT				TA
2017	FEB 18			AT	TA									TA	TA		*							AT		TA		TA
2018	MAR 17							AT						-					TA				AT	-	-		TA	AT
2019	APR 13	TA	-	-	-						-				TA				*	AT	-		-		-	AT	-	-
2020	MAY 10	- -	- -	- TA	AT	TA		-		TA			TA									*	*					
2021	JUN 6		*								AT				TA			AT		-	- -	- -	-	-	-	-	-	-
2022	JUL 3	-	-	-	-	-	- -	-	- -	- -	-	-	- -	- -	- -	- -	-	-	-	-	-	- -	- -	- -	- -	-	-
2023	JUL 30	-	- -	- -	-	-	-	-	- -	-	-	-	-	-	-	- -	- -	-	TA -	TA -	- -	-	-	-	-	AT -	- -	-
2024	AUG 26	- -	-	-	TA -	TA -	-																					

▨ = definitely towards the sun □ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day. The Thule magnetometer ceased operating in August 1981.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

NOTE: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

day	1980 SEPT.	OCT.	NOV.	DEC.	1981 JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.
01	-19	44	-41	-82	-111	33	.	75	2	16	53	-49
02	5	59	-94	.	.	20	54	82	-51	21	49	.
03	8	53	-120	.	-33	64	.	31	-66	17	41	-72
04	29	26	-123	-100	7	72	.	-23	-56	6	14	-80
05	42	-4	-111	-97	46	58	102	-67	-24	28	-17	-67
06	42	-36	-84	-67	66	28	81	-85	23	33	-62	-48
07	23	-62	-99	-16	.	.	39	-97	25	3	.	-33
08	9	-73	-107	41	116	.	-11	-76	36	-27	-93	-26
09	-27	-72	-61	71	49	-6	-28	-40	45	.	-56	-19
10	-68	-39	28	77	13	-24	-50	-28	49	-96	-43	-7
11	-77	-41	27	57	-29	-42	-58	-7	35	-75	.	16
12	-84	-45	38	28	.	-26	.	0	.	-58	.	58
13	-62	-10	26	3	-39	.	18	13	-76	.	-9	68
14	.	10	-1	-52	-13	15	35	-6	-147	.	-7	81
15	-39	38	-21	-93	8	24	.	-29	-131	.	9	68
16	-16	20	-50	-86	18	.	37	-61	-94	-3	0	49
17	7	-15	-68	-51	62	-8	12	-73	-50	.	38	49
18	.	-8	-81	26	67	-19	.	.	-47	50	59	42
19	-18	-2	-63	37	67	-62	.	.	-53	.	66	16
20	-38	-16	-24	39	37	-65	-41	-85	-41	.	.	12
21	-31	-14	.	.	.	-76	-91	-79	13	.	108	31
22	-15	-17	.	51	.	-70	-119	-86	.	.	107	38
23	-7	-8	97	41	.	-68	-120	-51	72	59	73	52
24	-22	31	80	28	-52	.	-102	5	61	.	34	67
25	-21	.	70	7	-87	-75	.	43	.	29	29	92
26	8	54	31	-13	.	.	-88	70	126	18	34	64
27	18	52	28	-20	.	-8	-52	67	109	.	28	15
28	18	48	-3	-42	.	.	-20	84	50	44	33	-12
29	18	44	-26	-65	.		31	122	24	62	43	-64
30	25	57	.	-88	-59		45	61	-9	50	38	-84
31		.		-95	-4		55		-4		1	-143

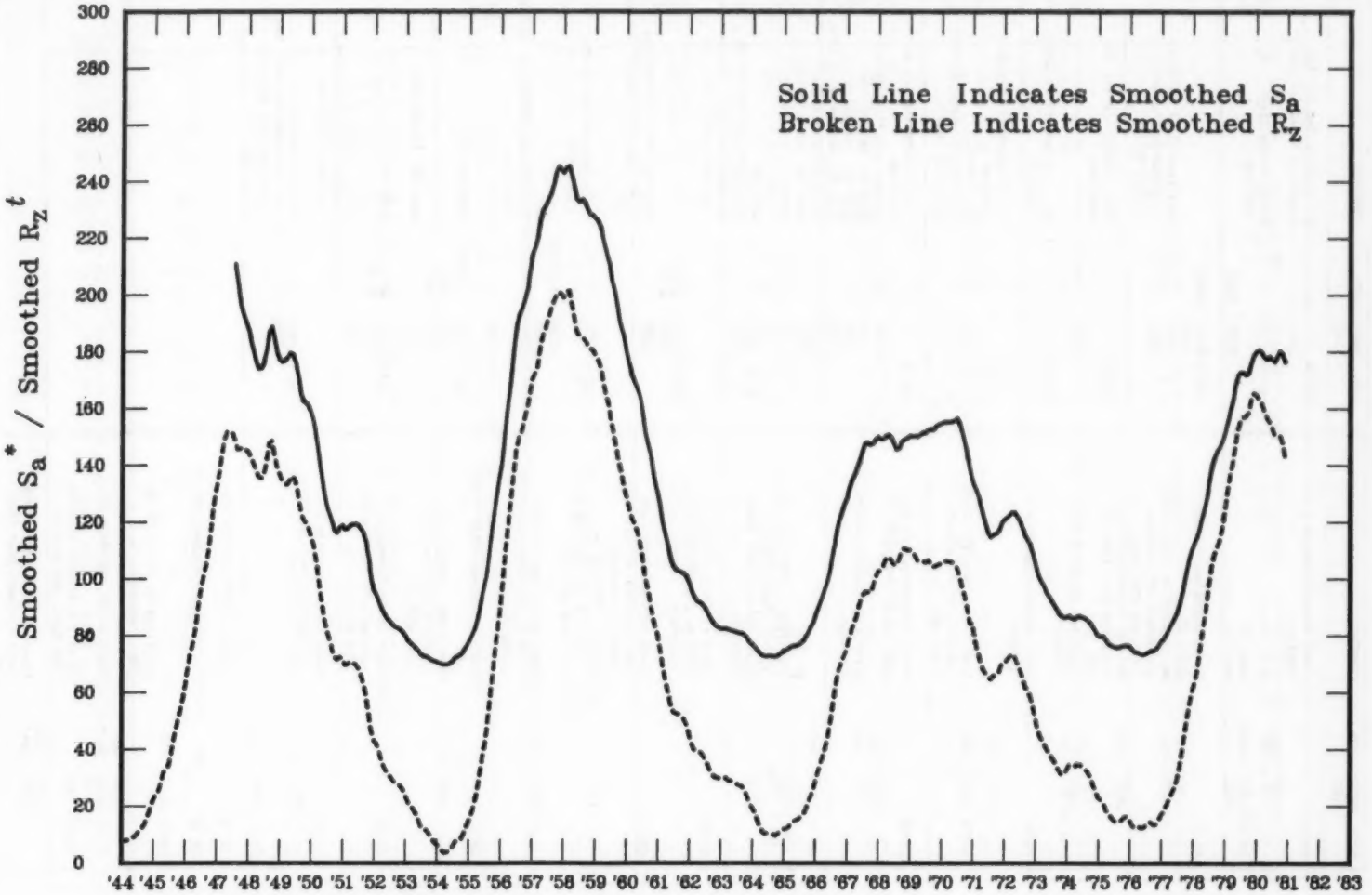
DOT SYMBOL INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

AUGUST 1981

DATE	ONSET TIME	DIR	COMMENTS
08/01			Field intermittently unsettled.
	0930	East	
08/02	1105	West	Weak SS
	1540		Weak SS
08/03			Field unsettled through 1630 UT.
	0130		Small positive impulse H-component all mid/low latitude stations.
	0625	East	Several injections with recovery near 1000 UT.
	1505		Weak SS
	2030		Localized vicinity Sachs Harbour.
08/04			Field intermittently unsettled.
	0730	East	
08/05	0505	East	Slow onset, multiple injections with recovery near 0800 UT.
08/06			Field intermittently unsettled through 1800 UT.
	0025	East	
	0800	West	Strongest response vicinity College.
08/07	1100	West	
	1625		Weak SS
	1800		Localized vicinity College, Inuvik, Norman Wells.
	2015		Localized vicinity Sachs Harbour.
08/08			Field slightly unsettled with no distinctive SS activity.
08/09			Field intermittently unsettled with no distinctive SS activity.
	1945		Positive impulse H-component all mid/low latitude stations.
08/10	0434	SSC	Field unsettled through 1630 UT, no distinctive SS activity.
08/11			Field unsettled after 1230 UT.
	1400	West	Slow onset, several injections with recovery near 1715 UT.
08/12			Field intermittently unsettled with no distinctive SS activity.
08/13			Field intermittently unsettled with no distinctive SS activity.
08/14	0950	West	
08/15			Field slightly unsettled.
08/16			Field slightly unsettled.
08/17	0046	SSC	
	0710		Localized SS Ft. Smith to Ft. Simpson.
	0755	West	
	1010	West	Sharp onset, moderate SS.
08/18	0245		SS effect evident Eusebio, San Juan, and Boulder.
	0715	East	
	1150	West	Numerous minor injections with recovery near 1900 UT.
08/19			Field unsettled all day.
	1245		Localized SS at College.
08/20			Field intermittently unsettled.
	0725	West	
08/21	0635	West	
	1155		
	1525		Localized SS at College.
	1625		Localized SS Inuvik to Norman Wells.
08/22			Field intermittently unsettled.
	0650	± center	
08/23			Magstorm conditions after 0730 UT.
08/24			Field intermittently unsettled.
	1420		Slow onset.
	1615		Strongest response Norman Wells to Inuvik.
08/25			Field intermittently unsettled.
	0725	East	Several minor injections.
	1025		Weak SS, College only.
	1600		Weak SS, College only.
	1650		Weak SS, Norman Wells only.
	1835		Sachs Harbour only.
	2010		Weak SS, Sachs Harbour only.
8/26	1605		Weak SS
	1945		Weak positive impulse H-component all mid/low latitude stations.
08/27	0950	East	
	1230	West	
	1605		Numerous minor injections with recovery near 2100 UT.
08/28			Field intermittently unsettled
	0635	± center	
	0855		Weak SS
	1050		Moderate SS, Anchorage to College.
	1620		
08/29	0840	± center	Moderate SS
	1220	West	
	1435	West	
	1840		Weak SS, Inuvik only.
08/30	1100	West	Moderate SS
	1320	West	
	2220		Positive impulse H-components all mid/low latitude stations.
08/31	0025		Weak substorm.
	0200		Weak substorm, several injections with recovery near 0500 UT.

Superposition of Zürich Sunspot Numbers and Ottawa 10.7 cm Flux
January 1944 – December 1980



* Solar Flux Units (10^{-22} W/m^2 Hz) Adjusted to 1 A.U., Series D.
t Reduced Zürich Sunspot Numbers.

SGD 445 Part I (Prompt)

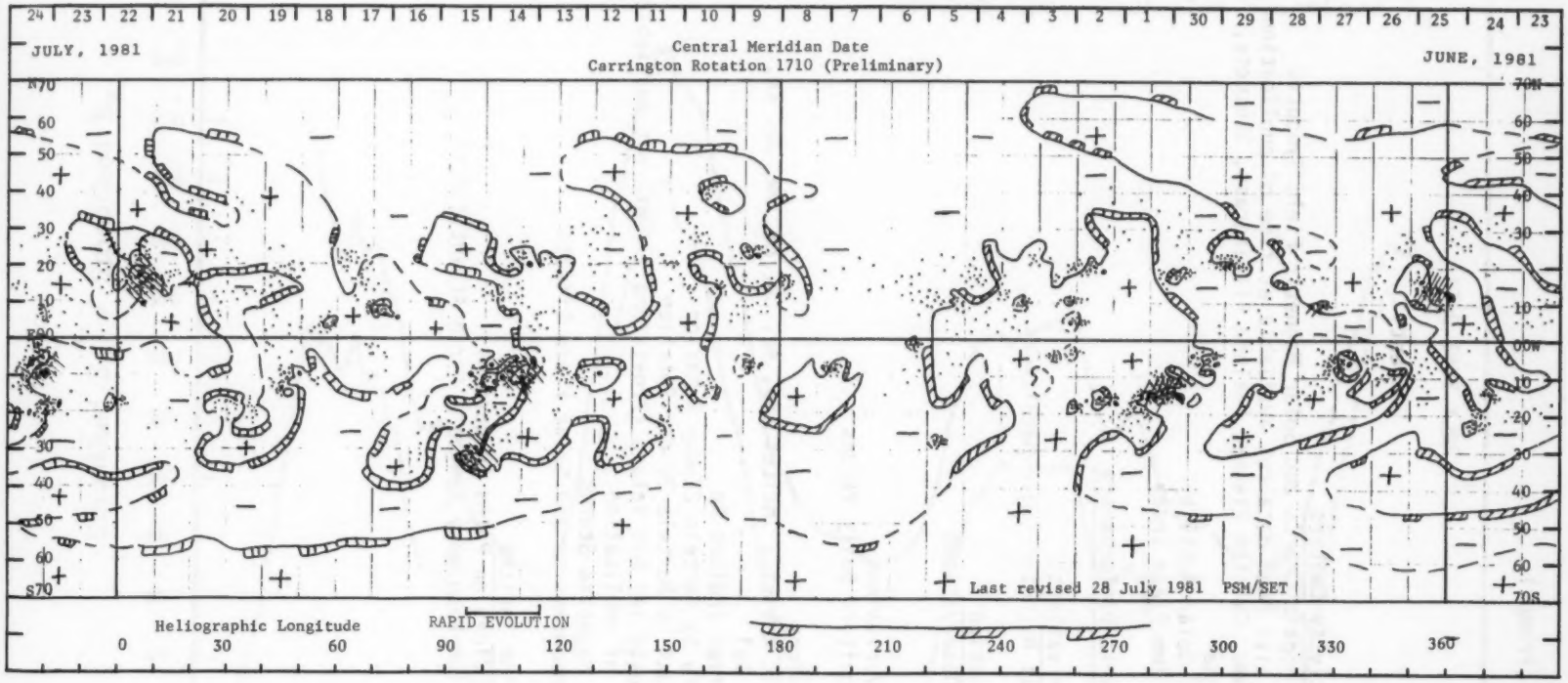
JULY 1981 DATA

Contents

	Page
Daily Solar Activity Centers	
H-alpha Synoptic Charts and Solar Magnetic Field Synoptic Charts (Kitt Peak data not available at time of publication.)	52-53
Magnetograms, Calcium Plages, H-alpha Filtergrams, Sunspots, and Corona	54-115
Regions of Solar Activity	116-129
Daily Calcium Plage Index	129
Sudden Ionospheric Disturbances	130-134
Spacecraft Observations	
Pioneer XII Magnetic Field Magnitudes	135
Solar Radio Emission	
Spectral Observations	136-156
Cosmic Rays	
Chart of Variations	157
Neutron Monitors Daily Values	158-159
Geomagnetic Indices	
Geomagnetic Activity Indices (Kp, Ap, Cp, Km, Am, aa, Kn, An, Ks, As)	160
Daily Average Indices Ap	161
Chart of Kp by Bartels 27-day Rotation	162
Chart of Dst by Bartels 27-day Rotation	
Hourly Equatorial Dst Values (Provisional) (Data not available at time of publication.)	
Principal Magnetic Storms	163
Sudden Commencements and Solar Flare Effects	164
Radio Propagation Indices	
Quality Indices on Paths to Germany	165
Transmission Frequency Ranges - North Atlantic Path	166-167

Hα SYNOPTIC CHART

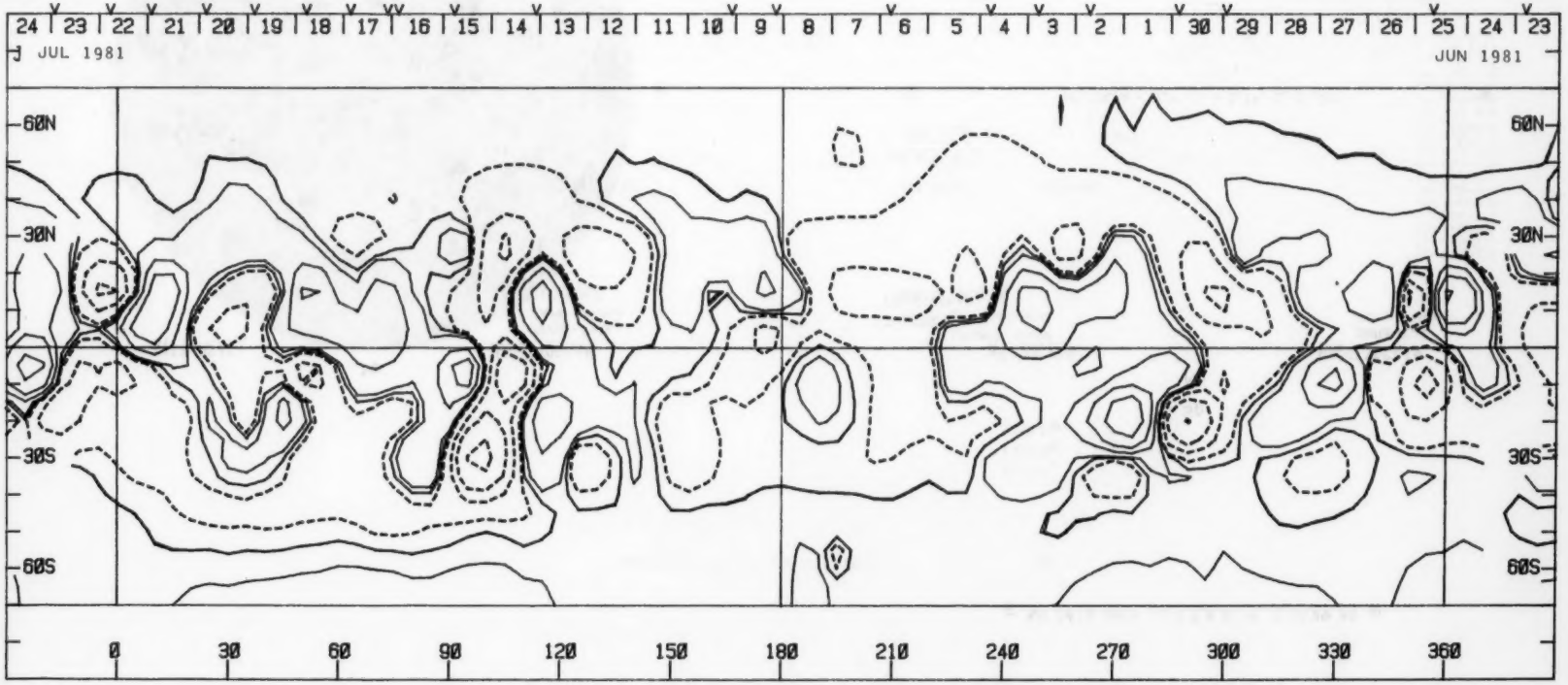
CARRINGTON ROTATION 1710 (PRELIMINARY)



SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1710

Stanford Solar Observatory

0,±100,200,500... μT



53
Jul 81

JULY 1, 1981 (P=-2.74, B_o= 2.89, L_o= 285.67)

SACRAMENTO PEAK Np CORONA
5303 Å

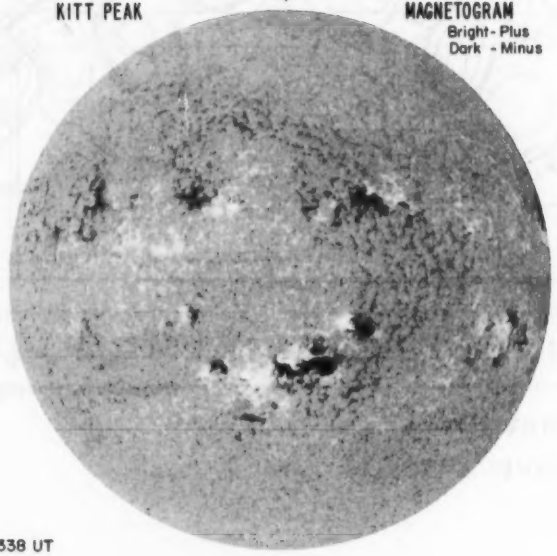
E NO DATA JULY 1, 2, 4, 7, 9, 12, 14, 17, 20, 29, 30 W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

1338 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA JULY 1, 3, 4, 5, 14, 15, 23, 29 W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

01

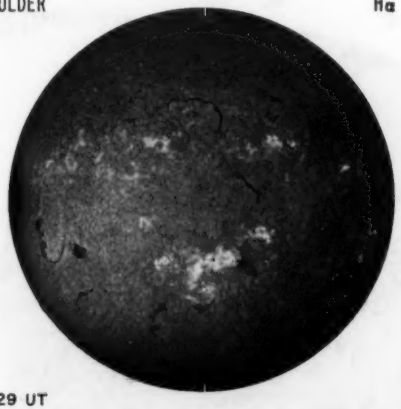
Np Np

01

BOULDER

Np

Hα



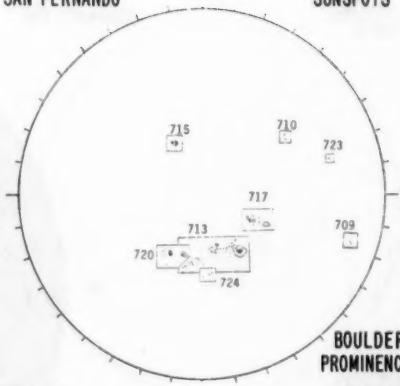
E W

Sp

1629 UT

SAN FERNANDO

Np



E W

Sp

1820 UT

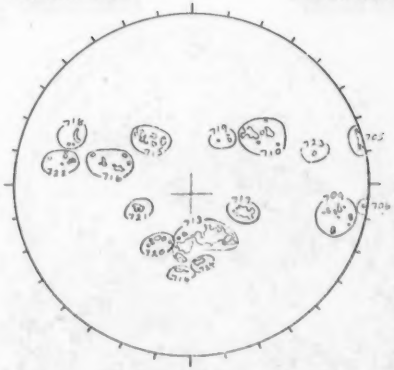
SUNSPOTS

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES

Np



E W

Sp

1632 UT

CALCIUM REPORT

GOOD	JA

05- 1300-3.0
09- 0600-3.0
10- 1100-3.0
13- 3100-4.0
14- 0200-3.0
15- 0700-3.0
16- 0600-3.0
17- 0700-3.5
18- 0500-3.0
19- 0200-2.5
20- 0400-3.0
21- 0300-3.0
22- 0400-2.5
23- 0100-3.0
24- 0200-3.0

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA JULY 1, 5, 7, 9, 10, 11, 12, 13

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

55

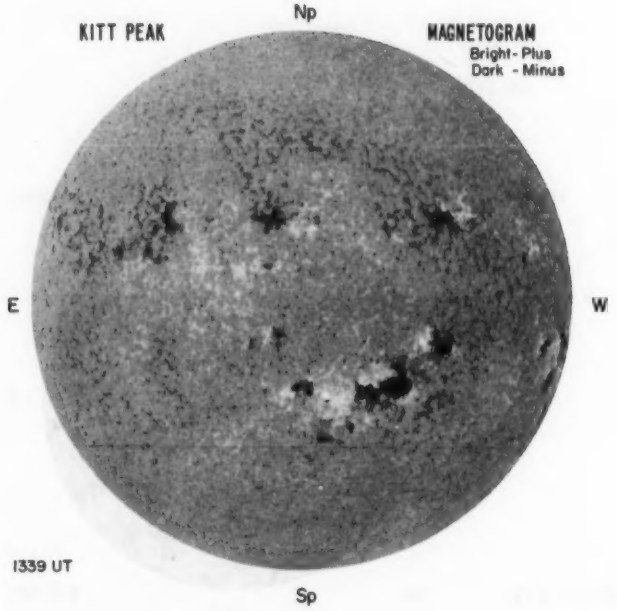
Jul 81

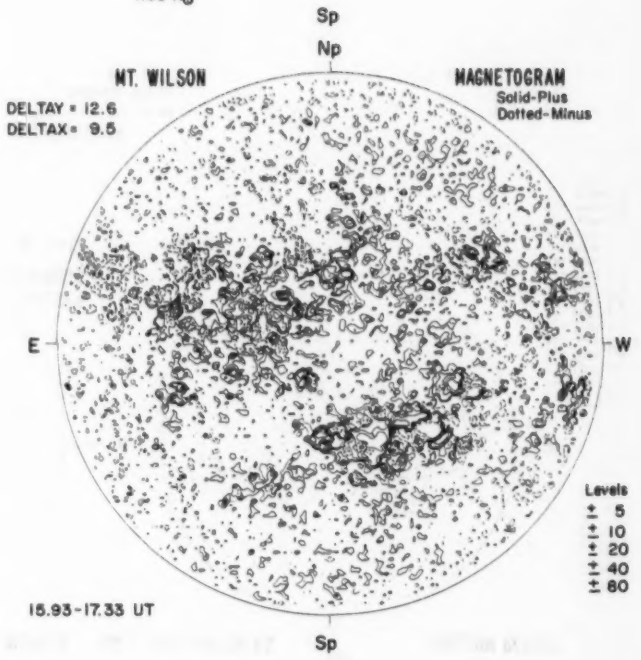
JULY 2, 1981 (P=-2.29, B_o = 3.00 L_o = 272.43)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$



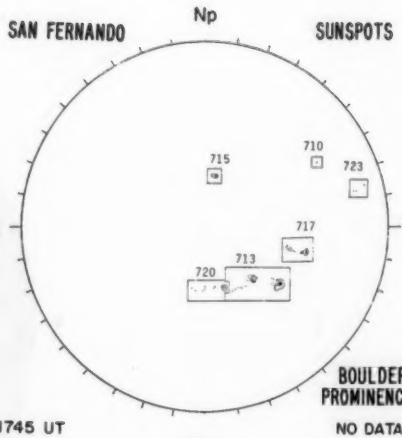


02

SACRAMENTO PEAK Hα

1458 UT

SAN FERNANDO SUNSPOTS

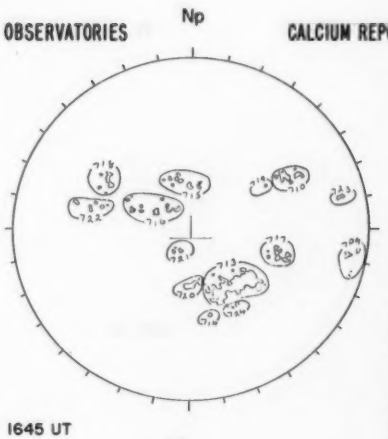


1745 UT

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES CALCIUM REPORT



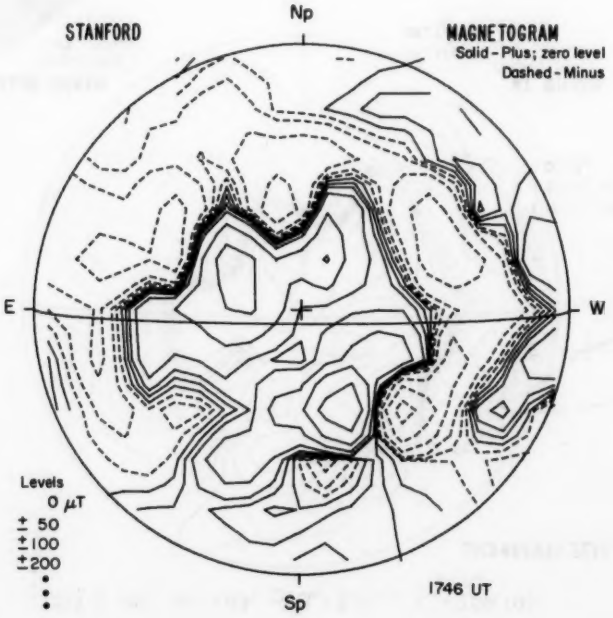
1645 UT

GOOD	JA

09- 0400-2.5
10- 0800-3.0
13- 3100-4.0
14- 0100-2.5
15- 0600-3.0
16- 0700-3.0
17- 0600-3.0
18- 0400-3.0
20- 0400-3.0
21- 0200-3.0
22- 0400-2.5
23- 0200-3.0
24- 0200-3.0

STANFORD MAGNETOGRAM

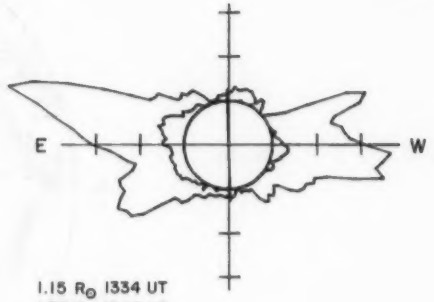
Solid - Plus; zero level
Dashed - Minus



1746 UT

JULY 3, 1981 (P=-1.83, B_o=3.11, L_o=259.19)

SACRAMENTO PEAK Np CORONA
5303 Å

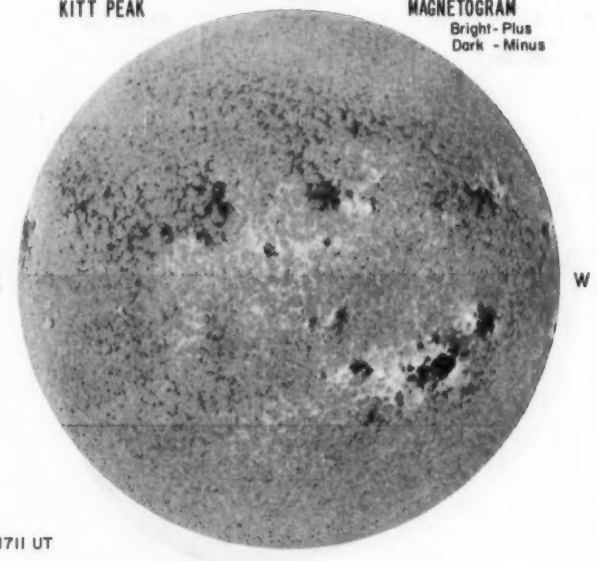


1.15 $R_\odot$ 1334 UT
1.35 $R_\odot$ 1342 UT
1.55 $R_\odot$

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1711 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

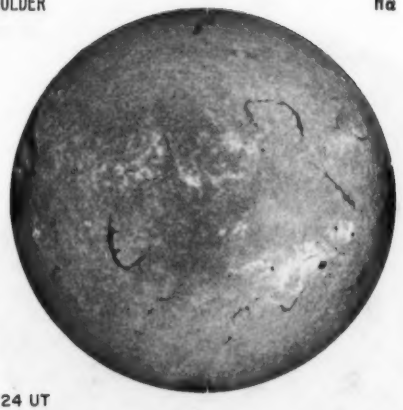
Levels
± 5
± 10
± 20
± 40
± 80

Sp

03

03

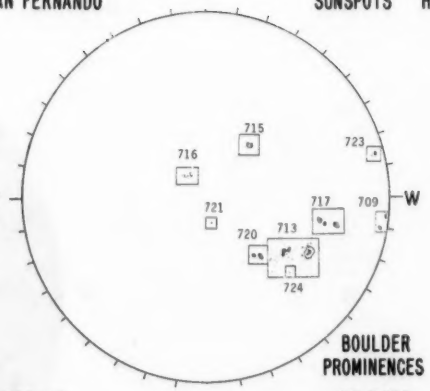
BOULDER Np Hα



E W

1724 UT Sp

SAN FERNANDO Np SUNSPOTS



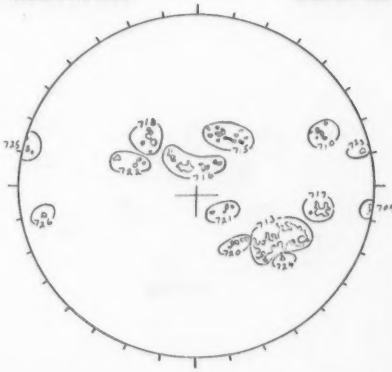
E W

1700 UT Sp

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES Np CALCIUM REPORT



E W

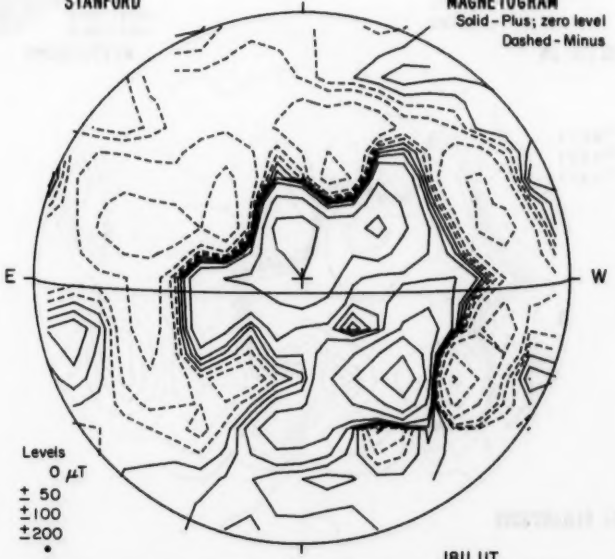
1711 UT Sp

GOOD	JA

09- 0400-3.0
10- 0500-3.0
13- 3300-4.0
15- 0700-3.0
16- 0900-3.0
17- 0700-3.5
18- 0400-3.0
20- 0300-3.5
21- 0200-3.0
22- 0300-3.0
23- 0200-3.0
24- 0100-3.0
25- 0400-2.5
26- 0100-2.5

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



E W

Levels
0 μT
± 50
±100
±200

1811 UT Sp

JULY 4, 1981 (P=-1.38, B_o = 3.22, L_o = 245.96)

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

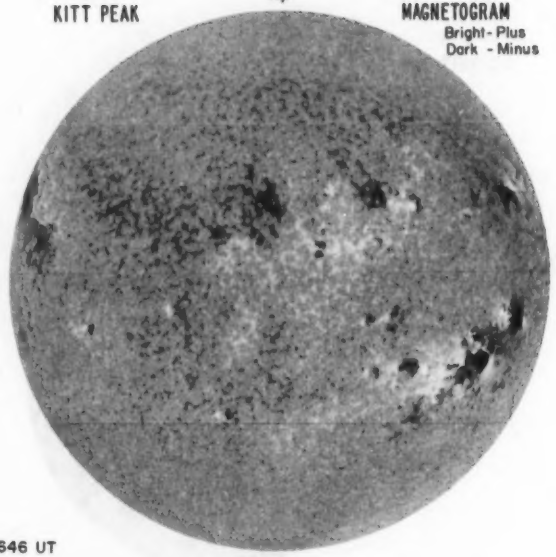
1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1646 UT

Sp

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

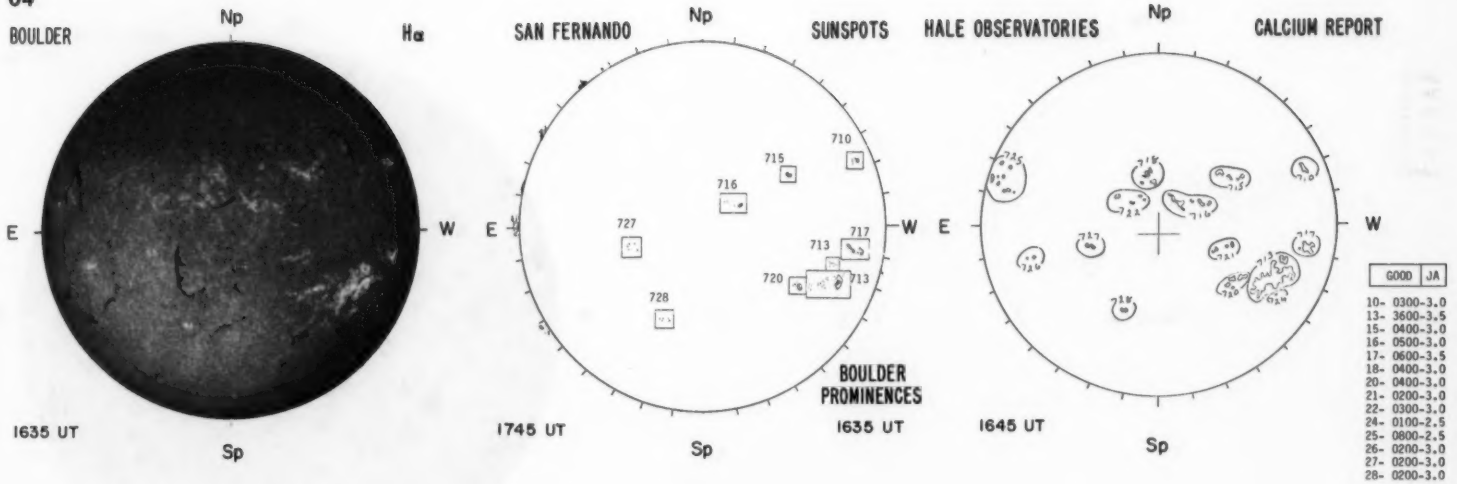
NO DATA

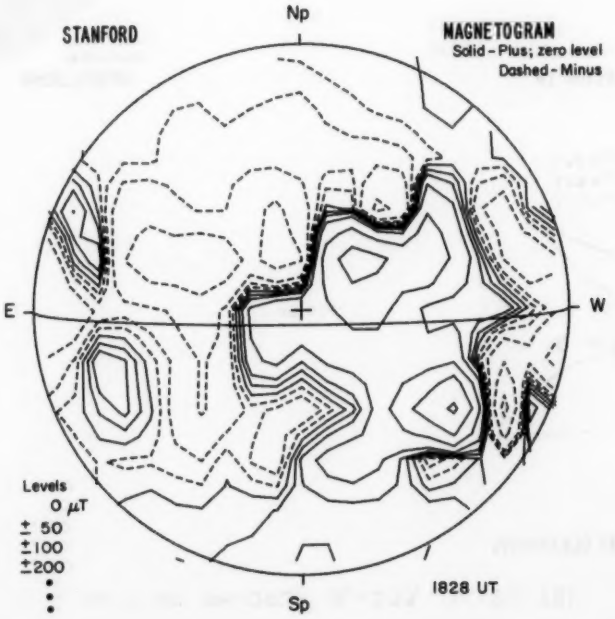
W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

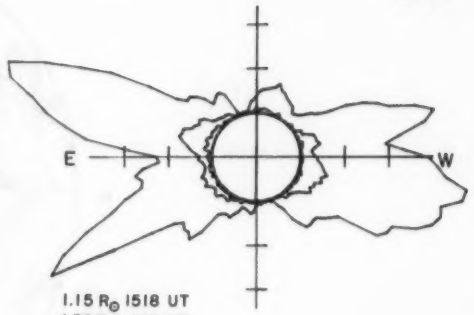
04


BOULDER
Np
Hα
E
W
Sp
1635 UT
SAN FERNANDO
SUNSPOTS
710
715
716
727
717
713
720
728
BOULDER
PROMINENCES
1745 UT
1635 UT
HALE OBSERVATORIES
CALCIUM REPORT
1645 UT
GOOD
JA
10- 0300-3.0
13- 3600-3.5
15- 0400-3.0
16- 0500-3.0
17- 0600-3.5
18- 0400-3.0
20- 0400-3.0
21- 0200-3.0
22- 0300-3.0
24- 0100-2.5
25- 0800-2.5
26- 0200-3.0
27- 0200-3.0
28- 0200-3.0


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
1828 UT

JULY 5, 1981 (P=-0.92, B_o = 3.33, L_o = 232.72)

SACRAMENTO PEAK Np CORONA 5303 Å

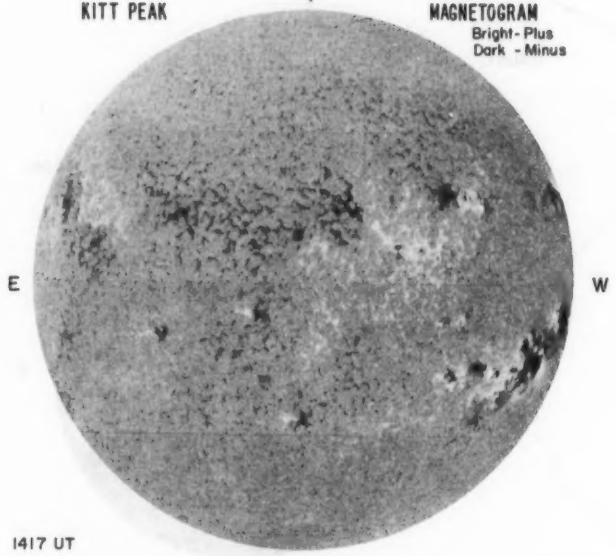


1.15 $R_\odot$ 1518 UT
1.35 $R_\odot$ 1459 UT
1.55 $R_\odot$ 1508 UT

Sp

Np

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



1417 UT

Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

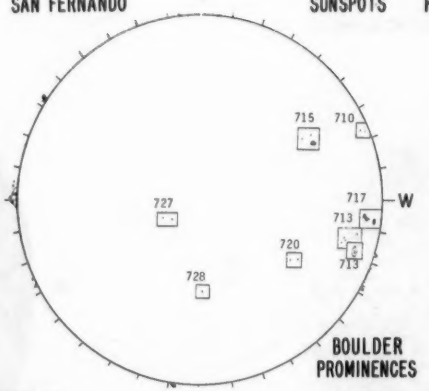
Sp

05

SACRAMENTO PEAK — Hα

1513 UT

SAN FERNANDO — SUNSPOTS

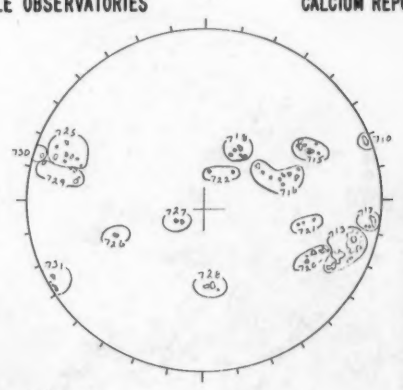


1630 UT

BOULDER PROMINENCES

1446 UT

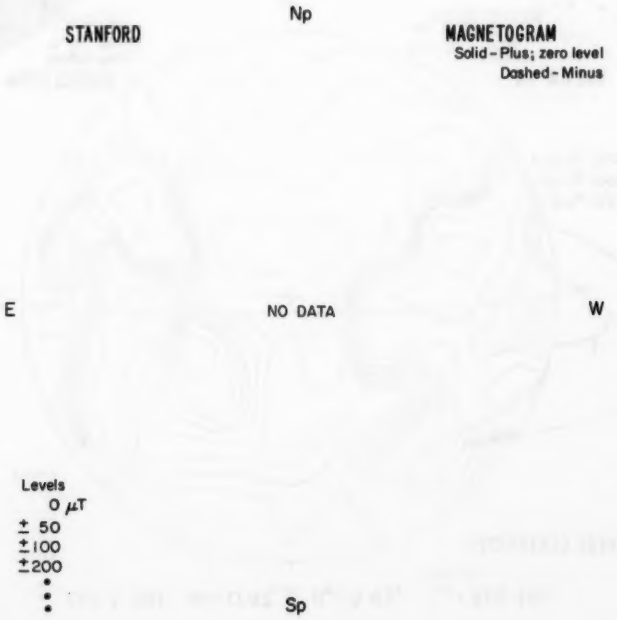
HALE OBSERVATORIES — CALCIUM REPORT



1802 UT

GOOD	JA
10- 0600-3.0	
13- 2800-3.5	
15- 0400-3.0	
16- 0500-3.0	
17- 0700-3.5	
18- 0300-3.0	
20- 0400-3.5	
21- 0200-3.0	
22- 0100-2.5	
25- 0700-2.5	
26- 0100-2.5	
27- 0100-3.0	
28- 0300-3.0	
29- 0300-2.5	
30- 0200-2.5	
31- 0300-3.0	

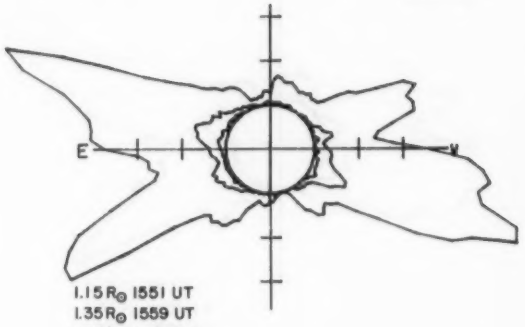
STANFORD



MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

JULY 6, 1981 (P=-0.47, B_o=3.43, L_o=219.49)

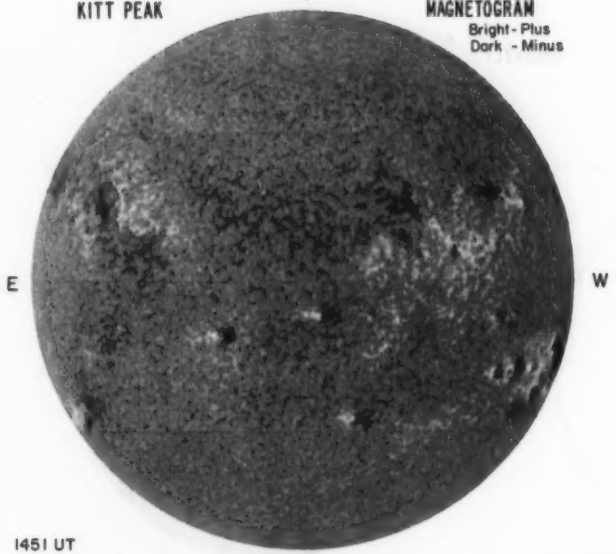
SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1551 UT
1.35 $R_\odot$ 1559 UT
1.55 $R_\odot$ 1609 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

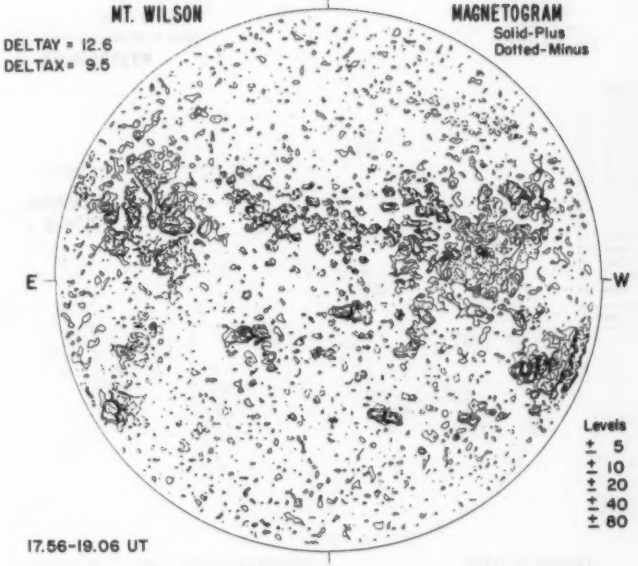


1451 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



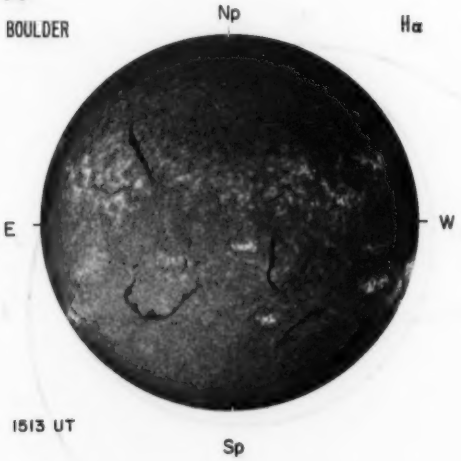
17.56-19.06 UT

Sp

06

06

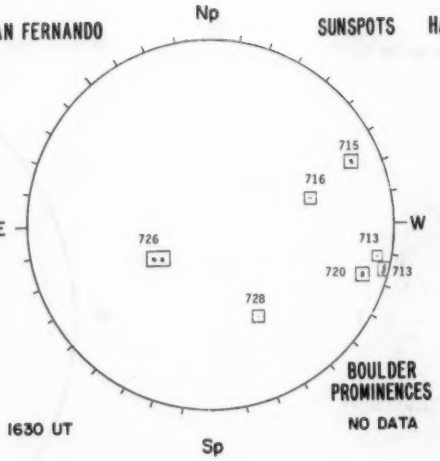
BOULDER



1513 UT

Hα

SAN FERNANDO



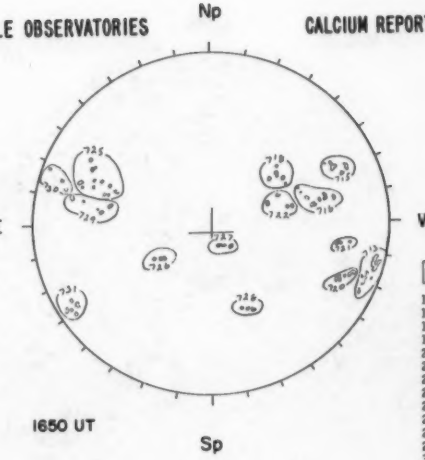
1630 UT

SUNSPOTS

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES



1650 UT

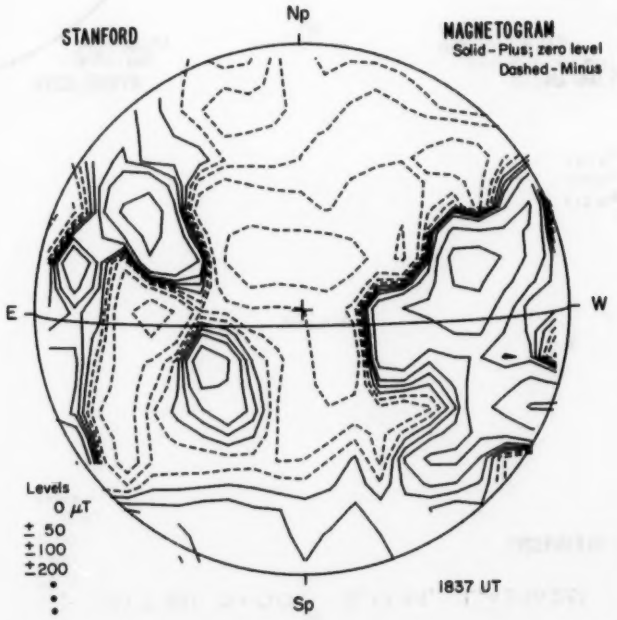
CALCIUM REPORT

GOOD	JA

13- 1300-3.5
15- 0600-3.0
16- 0500-3.0
18- 0400-3.0
20- 0400-3.5
21- 0200-2.5
22- 0300-2.5
25- 0600-3.0
26- 0100-3.0
27- 0200-3.0
28- 0200-3.0
29- 0300-2.5
30- 0300-2.5
31- 0500-2.5

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



1837 UT

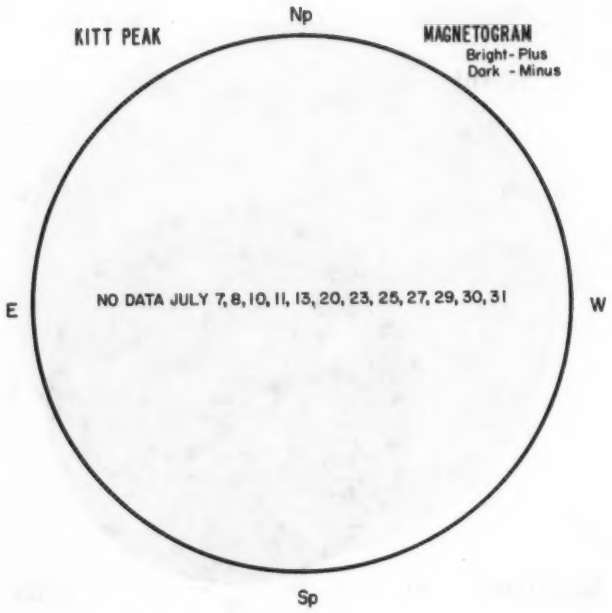
JULY 7, 1981 (P=-0.01, B_o=3.54, L_o=206.25)

SACRAMENTO PEAK Np CORONA 5303 Å

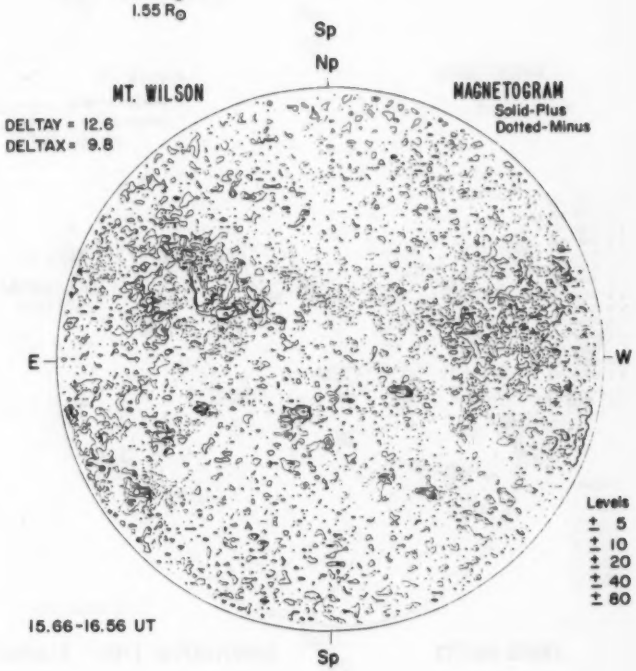
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

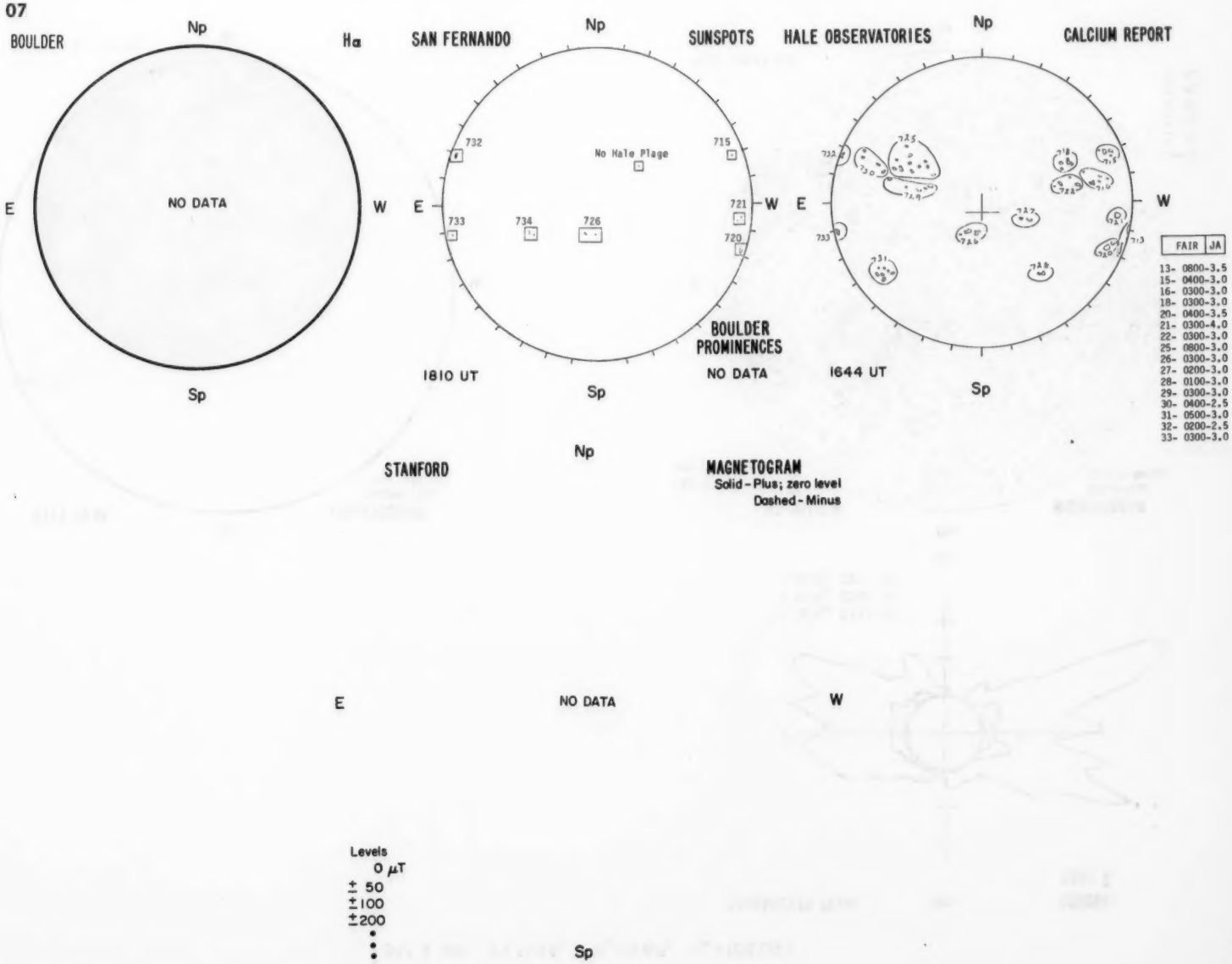
KITT PEAK



MT. WILSON

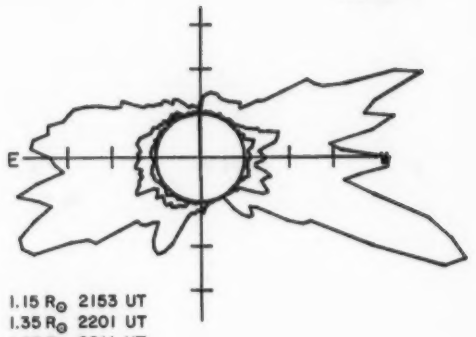


07


BOULDER
Np
Hα
E
NO DATA
W
Sp
SAN FERNANDO
Np
SUNSPOTS
732
No Hale Plage
715
E
W
733
734
726
721
720
1810 UT
Sp
BOULDER PROMINENCES
NO DATA
HALE OBSERVATORIES
Np
CALCIUM REPORT
E
W
1644 UT
Sp
FAIR JA
13- 0800-3.5
15- 0400-3.0
16- 0300-3.0
18- 0300-3.0
20- 0400-3.5
21- 0300-4.0
22- 0300-3.0
25- 0800-3.0
26- 0300-3.0
27- 0200-3.0
28- 0100-3.0
29- 0300-3.0
30- 0400-2.5
31- 0500-3.0
32- 0200-2.5
33- 0300-3.0
STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
NO DATA
W
Levels
0 μT
± 50
±100
±200
Sp

JULY 8, 1981 (P= 0.44, B_o = 3.64, L_o = 193.02)

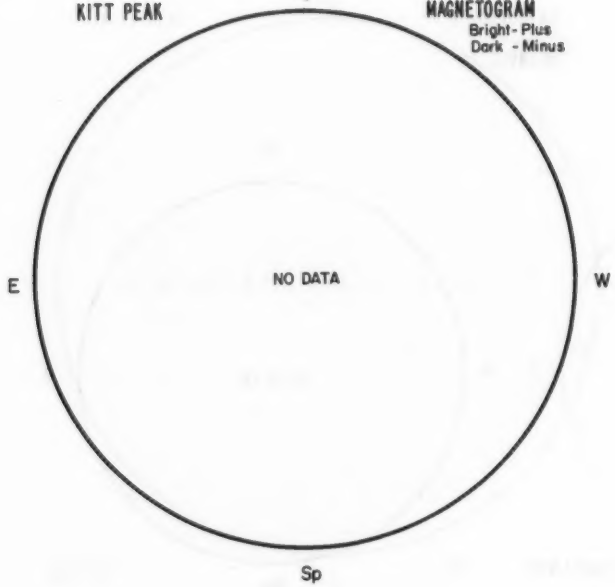
SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 2153 UT
1.35 $R_\odot$ 2201 UT
1.55 $R_\odot$ 2211 UT

Sp

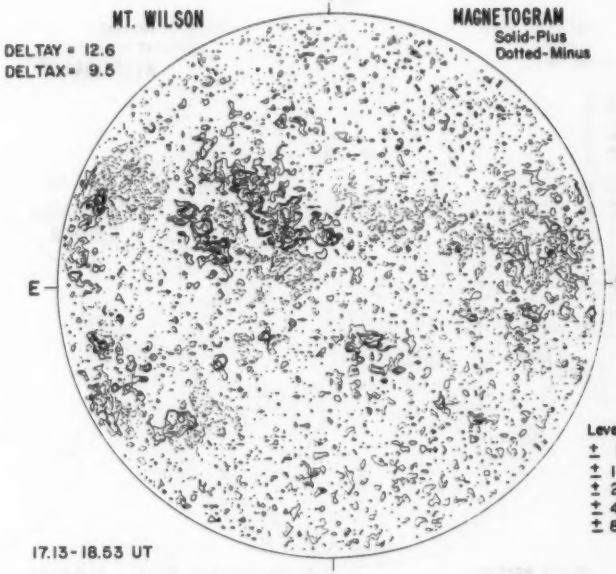
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



17.13 - 18.53 UT

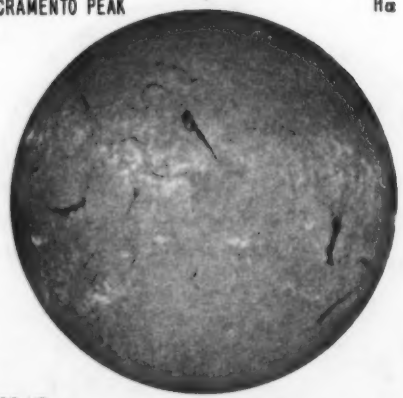
Sp

08

SACRAMENTO PEAK

Np

Hα



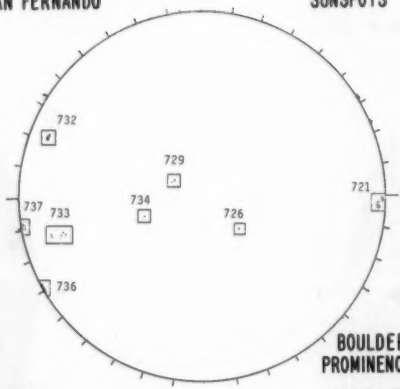
E W

1733 UT

Sp

SAN FERNANDO

Np



E W

1545 UT

Sp

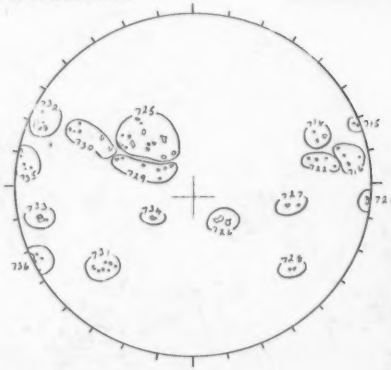
SUNSPOTS

BOULDER PROMINENCES

1946 UT

HALE OBSERVATORIES

Np



E W

1646 UT

Sp

CALCIUM REPORT

POOR	JA

15- 0200-3.0
16- 0200-2.5
18- 0200-3.0
21- 0300-4.0
22- 0200-2.5
25- 1100-3.0
26- 0300-3.0
27- 0100-3.0
28- 0100-3.0
29- 0400-3.0
30- 0400-3.0
31- 0300-3.0
32- 0400-2.5
33- 0200-3.0
34- 0100-2.5
35- 0300-2.5
36- 0500-3.0

STANFORD

Np

NO DATA

E W

Sp

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

•

••

•

Sp

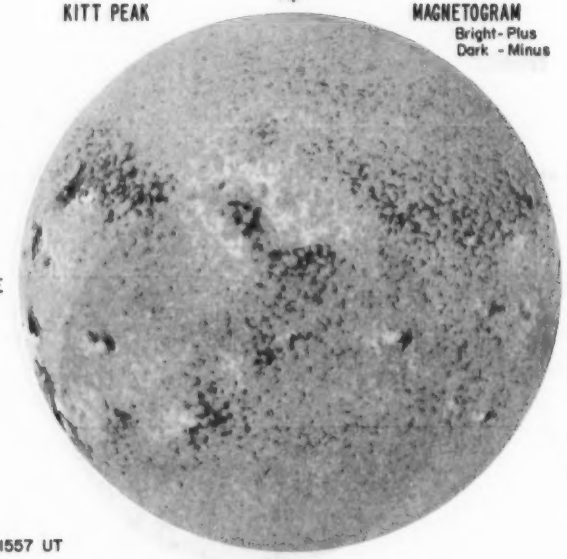
JULY 9, 1981 (P= 0.89, B_o= 3.75, L_o=179.78)

SACRAMENTO PEAK Np CORONA
5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



E W

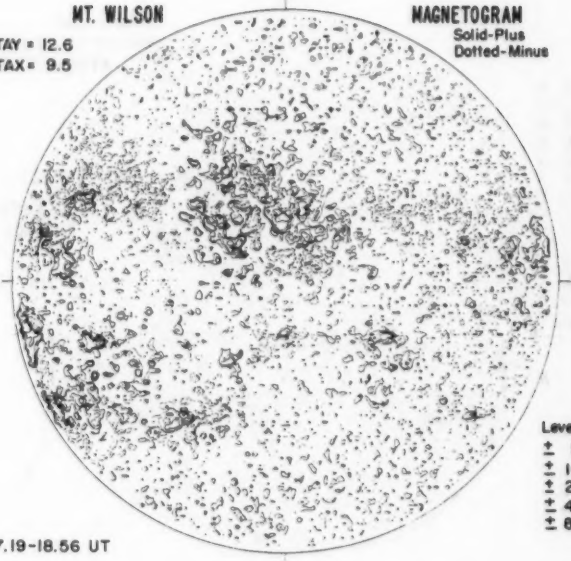
1557 UT

Sp

Sp Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



E W

Levels
± 5
± 10
± 20
± 40
± 80

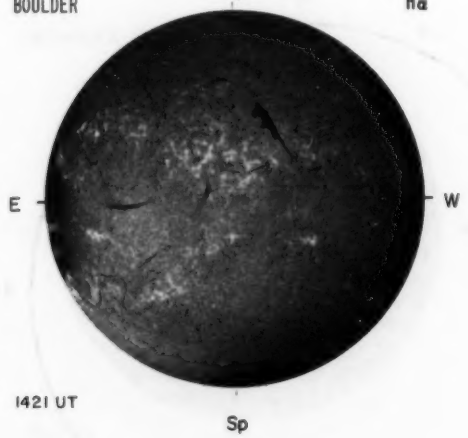
17.19-18.56 UT

Sp

09

09

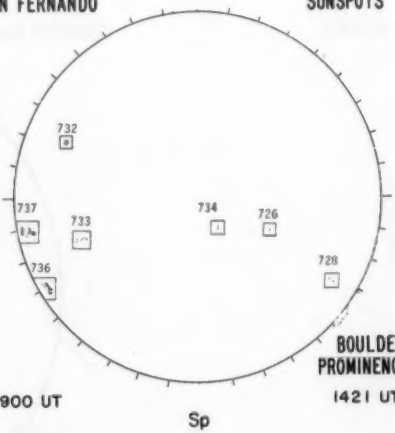
BOULDER



1421 UT

Hα

SAN FERNANDO



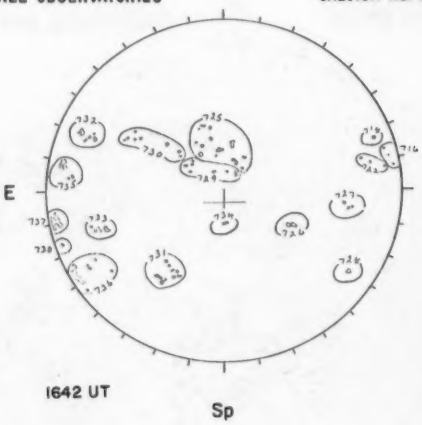
1900 UT

SUNSPOTS

BOULDER PROMINENCES

1421 UT

HALE OBSERVATORIES



1642 UT

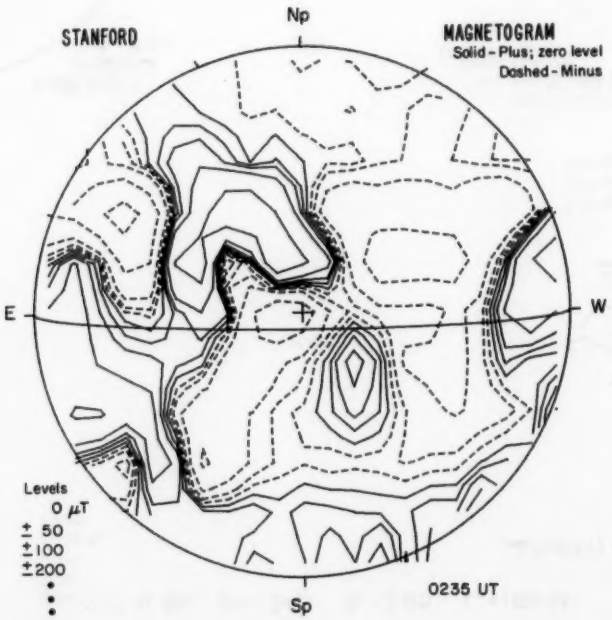
CALCIUM REPORT

FAIR	JA

18- 0100-2.5
22- 0100-2.5
25- 0900-3.0
26- 0200-3.5
28- 0200-4.0
29- 0300-3.0
30- 0300-3.0
31- 0500-3.0
32- 0400-3.0
33- 0300-3.0
34- 0100-3.0
35- 0400-3.0
36- 0900-4.0
37- 0900-4.0
38- 0100-3.0

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

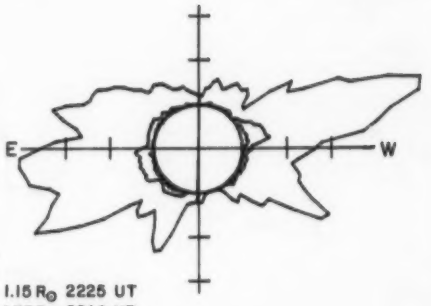


0235 UT

71
Jul 81

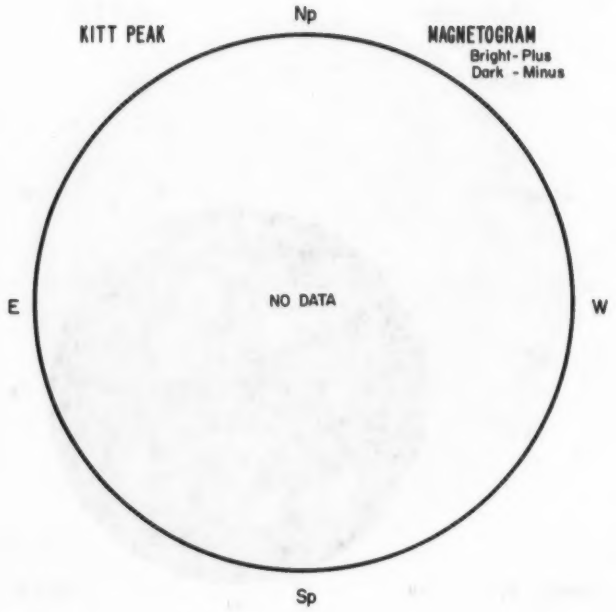
JULY 10, 1981 (P= 1.34, B_o = 3.85, L_o = 166.55)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 2225 UT
1.35 $R_\odot$ 2216 UT
1.55 $R_\odot$ 2233 UT

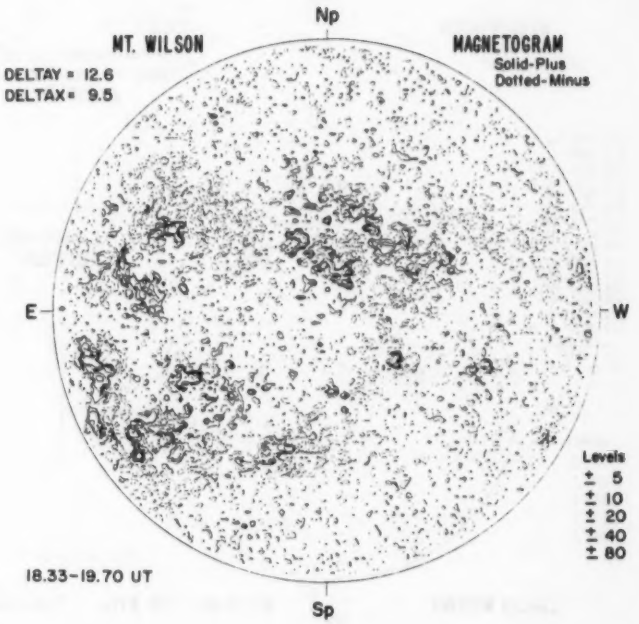
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



Sp

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



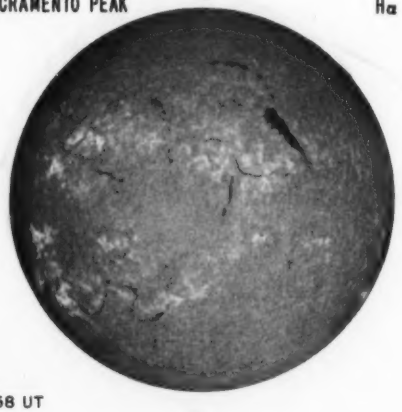
18.33-19.70 UT

10

SACRAMENTO PEAK

Np

Hα



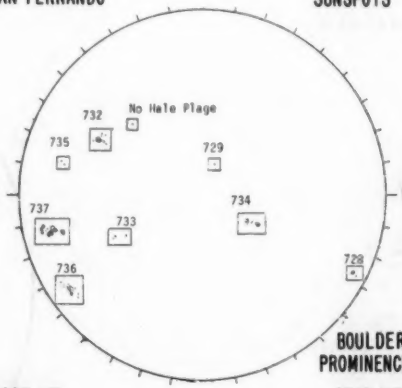
E W

1858 UT

Sp

SAN FERNANDO

Np



E W

1655 UT

Sp

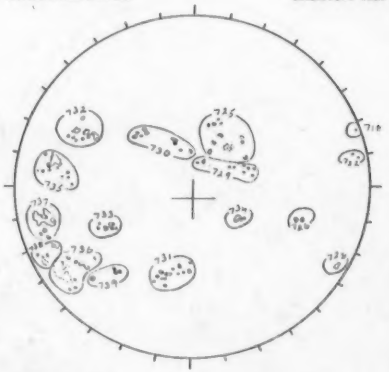
SUNSPOTS

BOULDER PROMINENCES

1510 UT

HALE OBSERVATORIES

Np



E W

1647 UT

Sp

CALCIUM REPORT

G000	JA

25- 0900-3.0
26- 0200-3.0
28- 0300-3.5
29- 0300-3.0
30- 0400-3.0
31- 0500-3.0
32- 0700-3.5
33- 0300-3.0
34- 0300-3.0
35- 0900-3.5
36- 1500-4.0
37- 1500-3.5
38- 0600-3.0
39- 0300-3.0

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

± 100

± 200

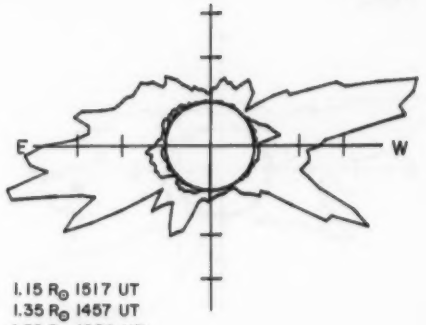
Sp

73

Jul 81

JULY 11, 1981 (P= 1.79, B_o = 3.95, L_o = 153.32)

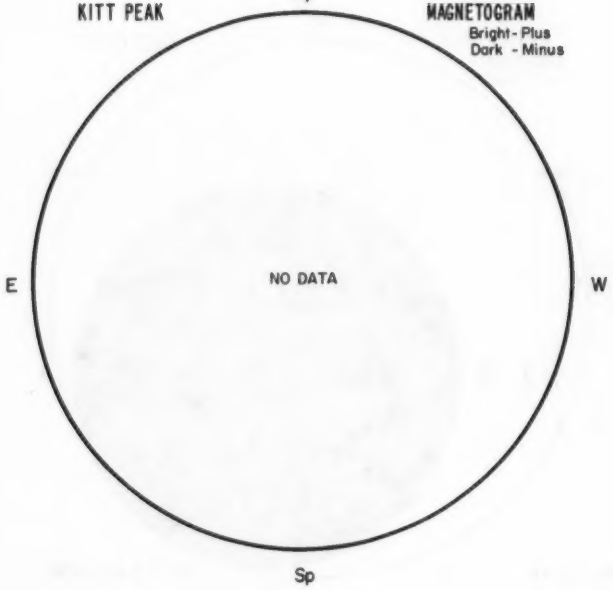
SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 1517 UT
1.35 $R_\odot$ 1457 UT
1.55 $R_\odot$ 1506 UT

Sp

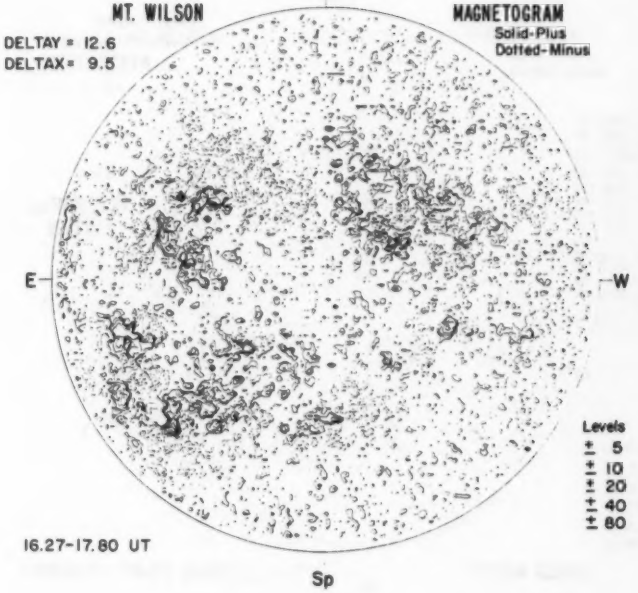
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5



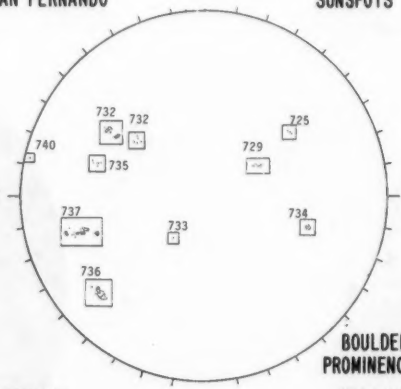
16.27-17.80 UT

SACRAMENTO PEAK Np Hα

E W

1341 UT Sp

SAN FERNANDO Np SUNSPOTS



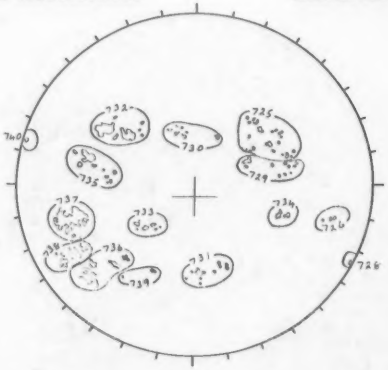
E W

1730 UT Sp

BOULDER PROMINENCES

1344 UT

HALE OBSERVATORIES Np CALCIUM REPORT



E W

1735 UT Sp

GOOD	JA

25- 1000-3.0
26- 0200-3.0
28- 0100-3.0
29- 0500-3.0
30- 0400-3.0
31- 0600-3.0
32- 1400-4.0
33- 0400-3.5
34- 0300-3.5
35- 1100-3.5
36- 2700-4.0
37- 3100-3.5
38- 1200-3.0
39- 0200-3.0
40- 0300-3.0

STANFORD Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
±100
±200

Sp

75
Jul 81

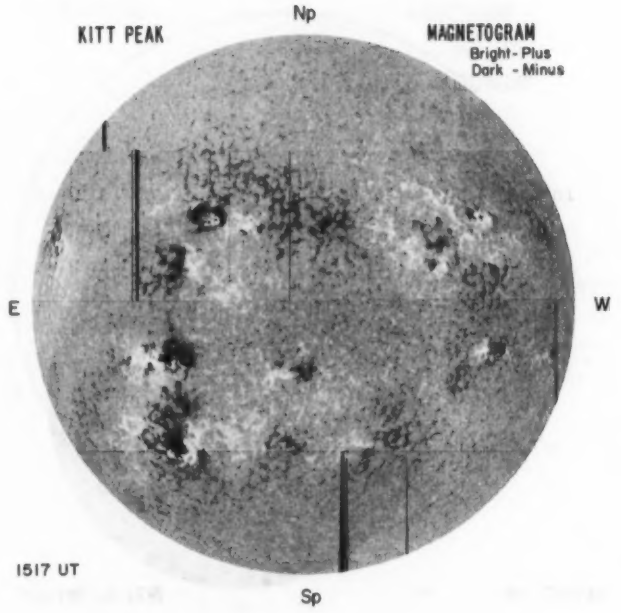
JULY 12, 1981 (P= 2.24, B_o = 4.05, L_o = 140.08)

SACRAMENTO PEAK Np CORONA 5303 Å

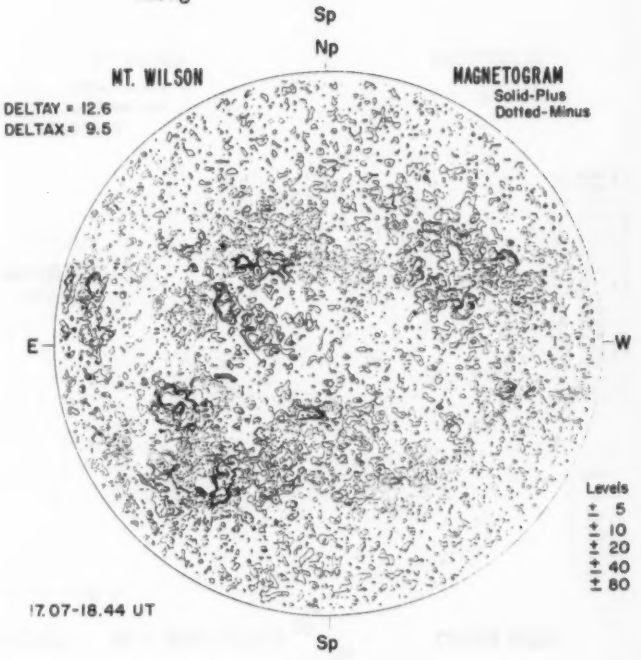
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK



MT. WILSON

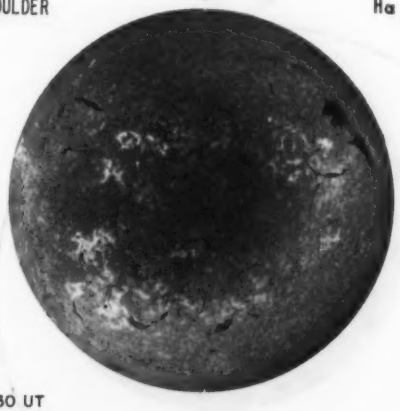


12

BOULDER

Np

Hα



E

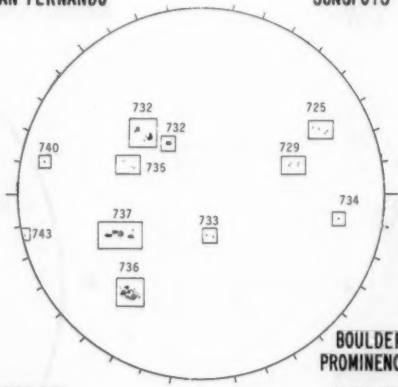
W

1330 UT

Sp

SAN FERNANDO

Np



E

W

1800 UT

Sp

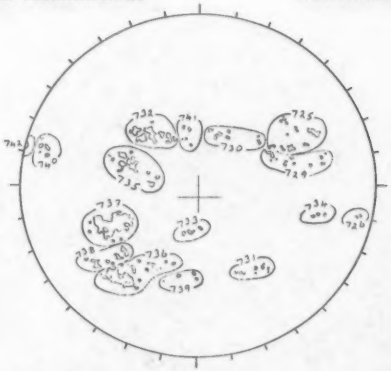
SUNSPOTS

BOULDER PROMINENCES

1330 UT

HALE OBSERVATORIES

Np



E

W

1808 UT

Sp

CALCIUM REPORT

G000	JA

25- 0800-3.0
26- 0100-2.5
29- 0500-3.0
30- 0400-3.0
31- 0400-2.5
32- 1400-4.0
33- 0200-3.0
34- 0200-3.0
35- 1300-3.5
36- 2600-4.0
37- 3200-3.5
38- 1000-3.0
39- 0200-3.0
40- 0400-3.0
41- 0200-2.5
42- 0300-3.5

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

NO DATA

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

77

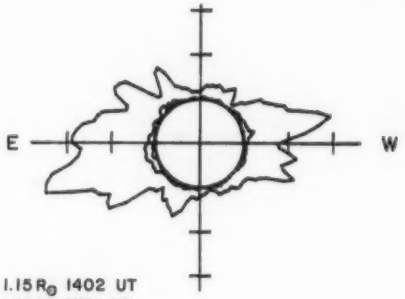
Jul 81

JULY 13, 1981 (P= 2.69, B_o = 4.15, L_o = 126.85)

SACRAMENTO PEAK

Np

CORONA
5303 Å



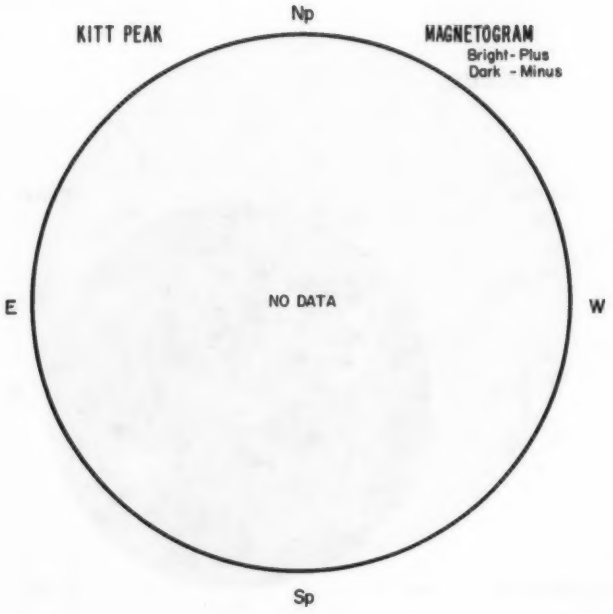
1.15 $R_\odot$ 1402 UT
1.35 $R_\odot$ 1334 UT
1.55 $R_\odot$ 1347 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



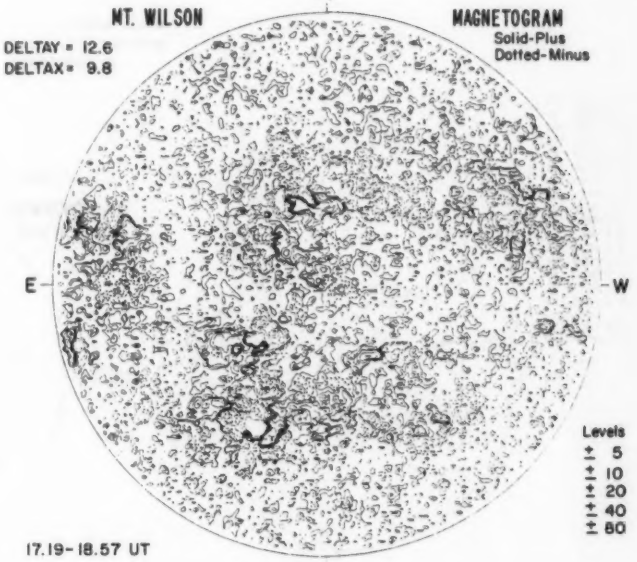
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.8



17.19-18.57 UT

Sp

13

BOULDER

Np

E W

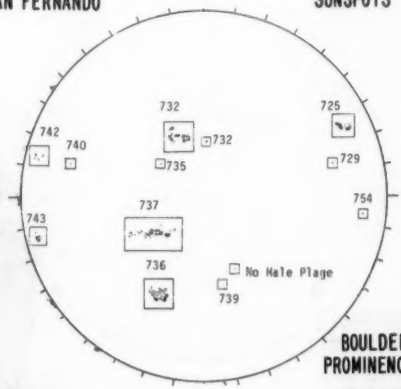
Sp

1311 UT

Hα

SAN FERNANDO

Np



E W

Sp

1715 UT

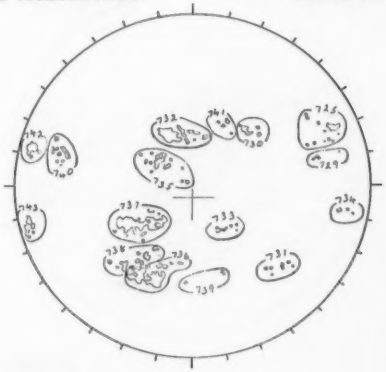
SUNSPOTS

BOULDER PROMINENCES

1311 UT

HALE OBSERVATORIES

Np



E W

Sp

1729 UT

CALCIUM REPORT

GOOD	JA

25- 0900-3.0
29- 0100-3.0
30- 0500-3.0
31- 0300-2.5
32- 1600-4.0
33- 0300-3.5
34- 0300-3.0
35- 1100-3.5
36- 2400-4.0
37- 2800-4.0
38- 1000-3.5
39- 0200-2.5
40- 0600-3.0
41- 0200-3.0
42- 1100-3.5
43- 0700-3.5

STANFORD

Np

NO DATA

E W

Sp

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

Levels

0 μT

± 50

±100

±200

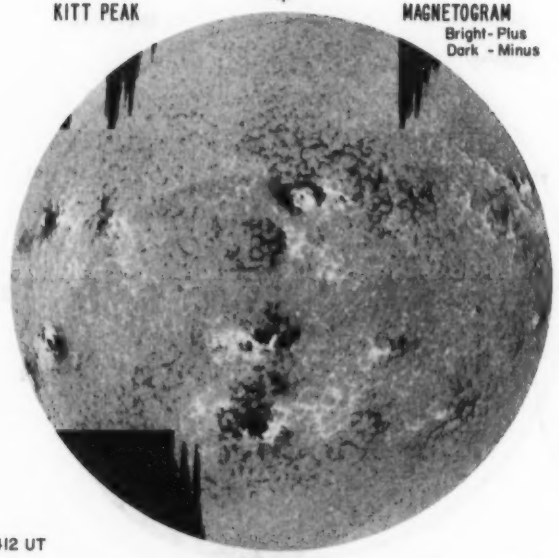
79 Jul 81

JULY 14, 1981 (P= 3.14, B_o = 4.25, L_o = 113.61)

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



E

W

1412 UT

Sp

SACRAMENTO PEAK

Np

CORONA
5303 Å

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E

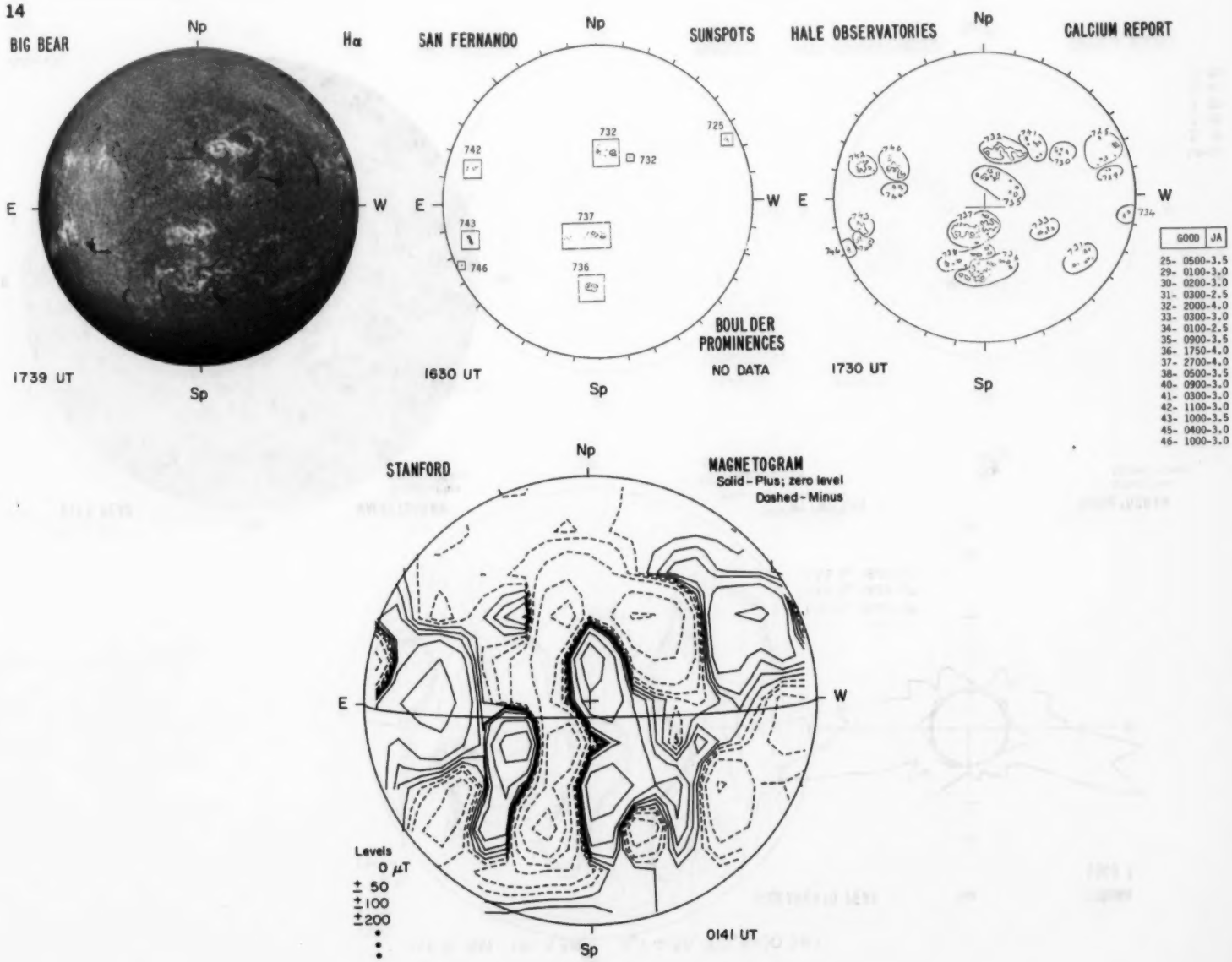
NO DATA

W

Levels
± 5
± 10
± 20
± 40
± 60

Sp

14

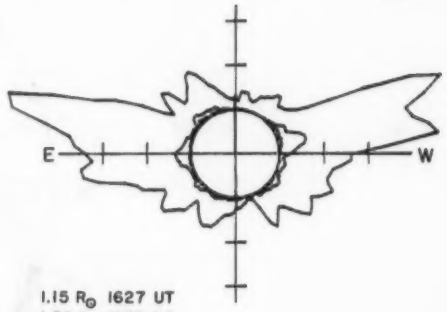

BIG BEAR
Hα
Np
E
W
Sp
1739 UT
SAN FERNANDO
SUNSPOTS
Np
E
W
Sp
742
732
732
725
743
737
746
736
BOULDER PROMINENCES
NO DATA
1630 UT
HALE OBSERVATORIES
CALCIUM REPORT
Np
E
W
Sp
1730 UT
GOOD
JA
25- 0500-3.5
29- 0100-3.0
30- 0200-3.0
31- 0300-2.5
32- 2000-4.0
33- 0300-3.0
34- 0100-2.5
35- 0900-3.5
36- 1750-4.0
37- 2700-4.0
38- 0500-3.5
40- 0900-3.0
41- 0300-3.0
42- 1100-3.0
43- 1000-3.5
45- 0400-3.0
46- 1000-3.0
STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
Levels
0 μT
± 50
±100
±200
0141 UT

JULY 15, 1981 (P= 3.58, B_o = 4.35, L_o = 100.38)

SACRAMENTO PEAK

Np

CORONA
5303 Å



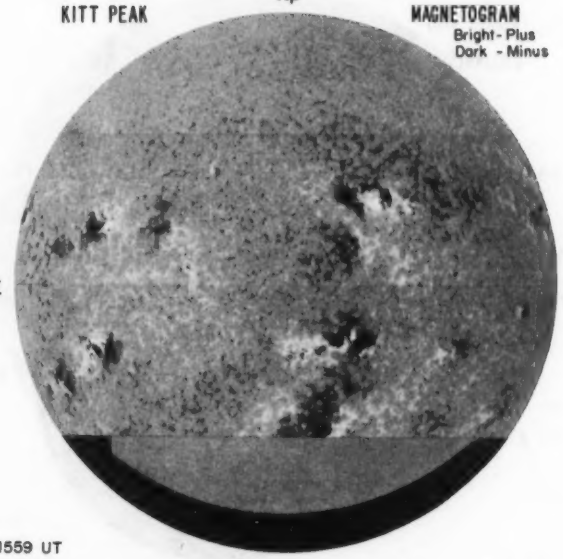
1.15 $R_\odot$ 1627 UT
1.35 $R_\odot$ 1635 UT
1.55 $R_\odot$ 1644 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1559 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

E

NO DATA

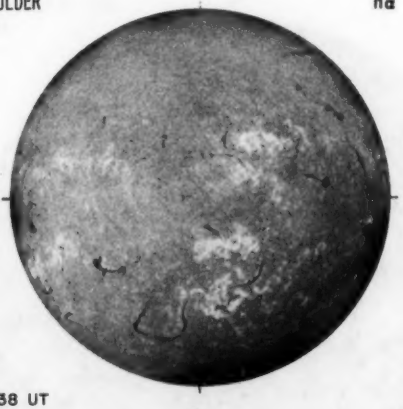
W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

BOULDER

Np



E W

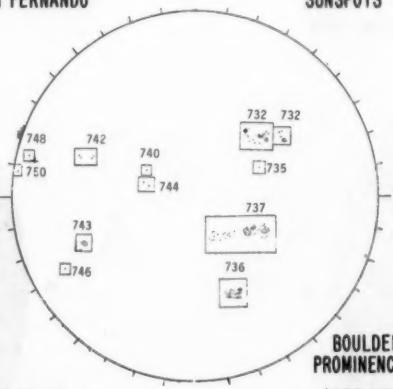
Sp

1438 UT

Hα

SAN FERNANDO

Np



E W

Sp

2340 UT

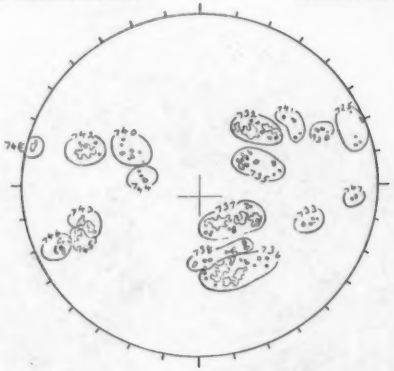
SUNSPOTS

BOULDER PROMINENCES

1438 UT

HALE OBSERVATORIES

Np



E W

Sp

1836 UT

CALCIUM REPORT

GOOD	JA

30- 0200-2.5
32- 1800-4.0
33- 0200-2.5
35- 0700-3.0
36- 2600-3.5
37- 2400-4.0
38- 0400-3.5
40- 0500-3.0
41- 0200-2.5
42- 1000-3.0
43- 0600-3.5
44- 0200-3.0
45- 0500-3.5
46- 0600-3.0
47- 0100-3.0
48- 0400-3.0

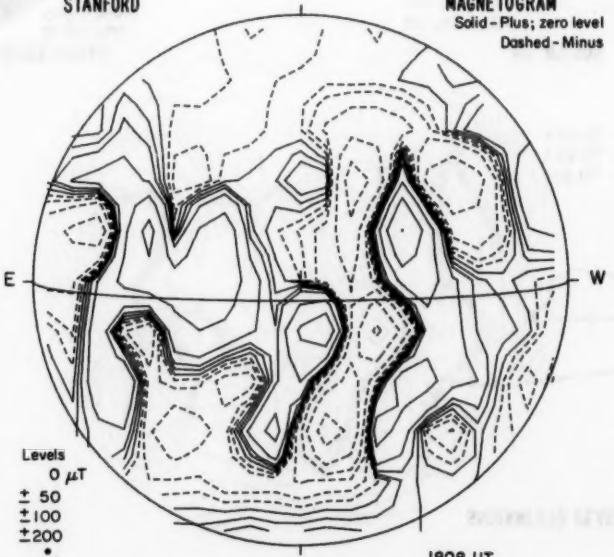
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

1808 UT

83

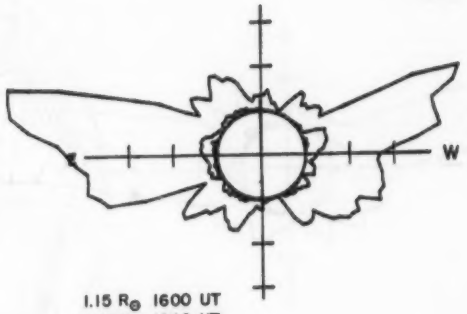
Jul 81

JULY 16, 1981 (P= 4.03, B_o = 4.44, L_o = 87.15)

SACRAMENTO PEAK

Np

CORONA
5303 Å



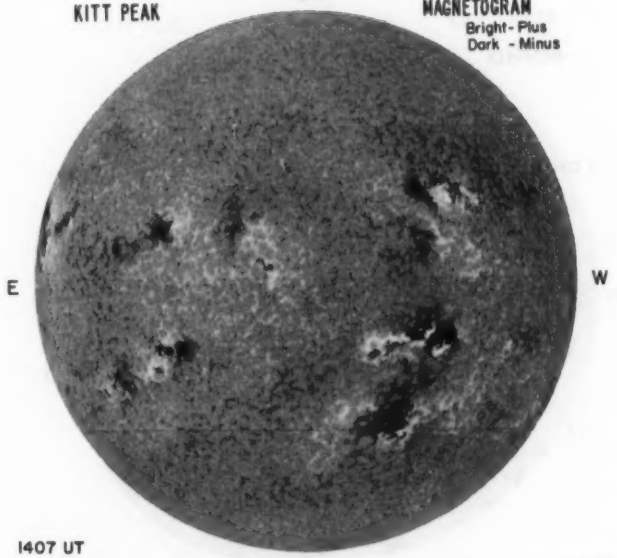
1.15 $R_\odot$ 1600 UT
1.35 $R_\odot$ 1540 UT
1.55 $R_\odot$ 1549 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1407 UT

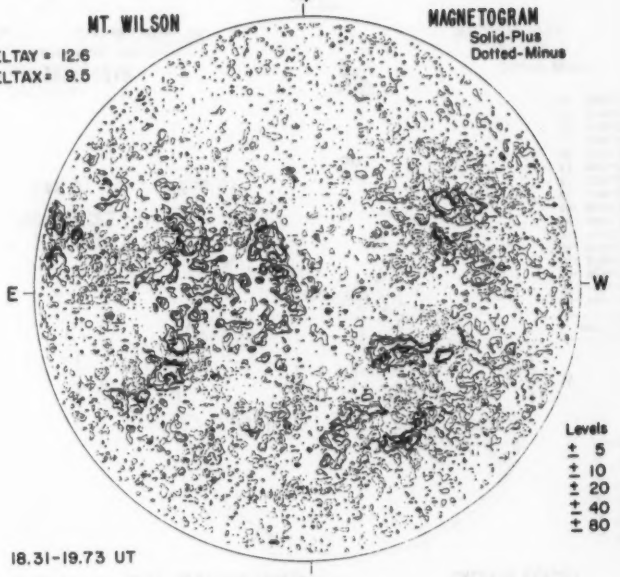
Sp

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

Np

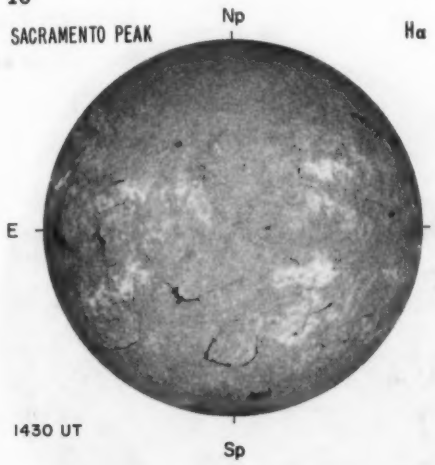
MAGNETOGRAM
Solid-Plus
Dotted-Minus



18.31-19.73 UT

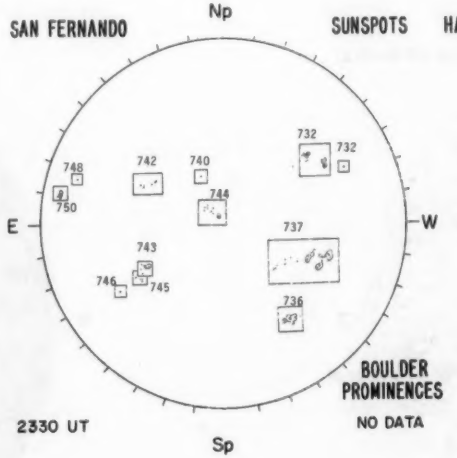
Sp

SACRAMENTO PEAK Hα



1430 UT

SAN FERNANDO SUNSPOTS

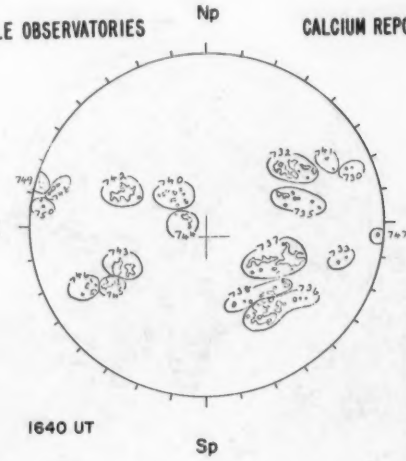


2330 UT

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES CALCIUM REPORT

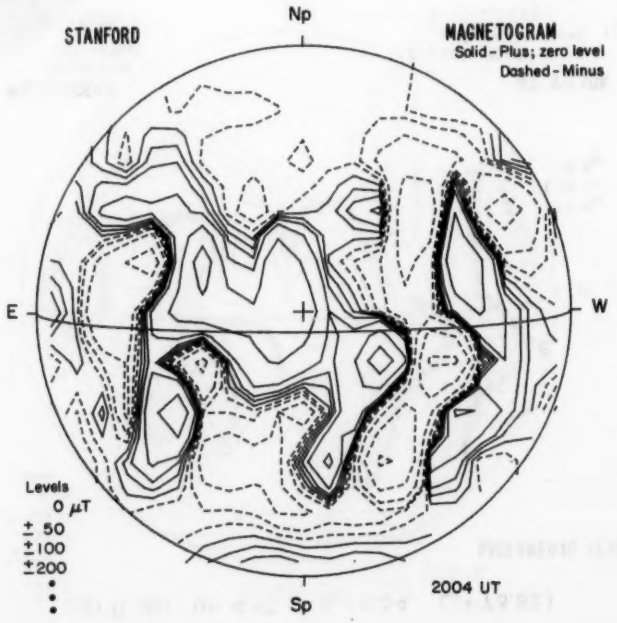


1640 UT

GOOD	JA
32- 1700-3.5	
33- 0200-2.5	
35- 0600-3.0	
36- 2600-4.5	
37- 2300-4.0	
38- 0400-3.5	
40- 0500-3.0	
41- 0100-2.5	
42- 1300-3.5	
43- 1000-3.5	
44- 0300-3.5	
45- 0600-3.5	
46- 0300-3.0	
47- 0100-3.0	
48- 0200-3.0	
49- 0500-3.0	

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



2004 UT

JULY 17, 1981 (P= 4.47, B_o = 4.54, L_o = 73.92)

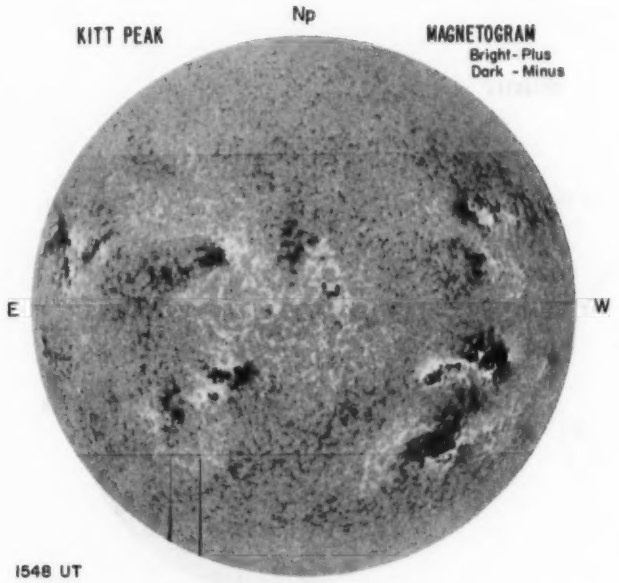
SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

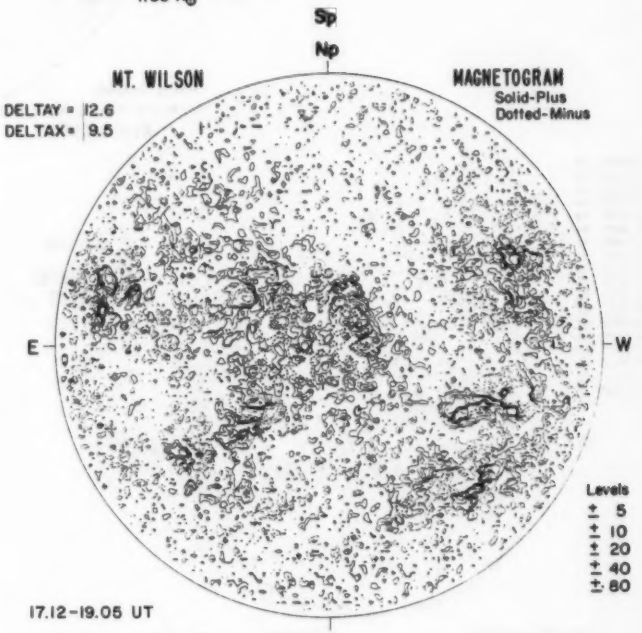


1548 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

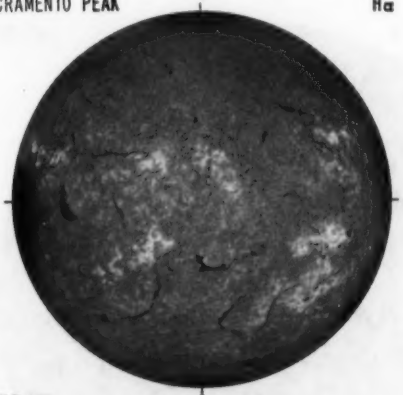
MAGNETOGRAM
Solid-Plus
Dotted-Minus



Levels
± 5
± 10
± 20
± 40
± 80

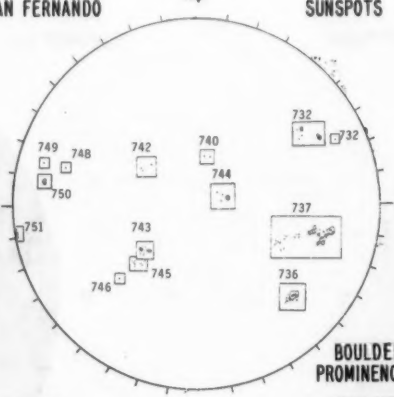
17.12-19.05 UT

SACRAMENTO PEAK Hα



2153 UT

SAN FERNANDO SUNSPOTS

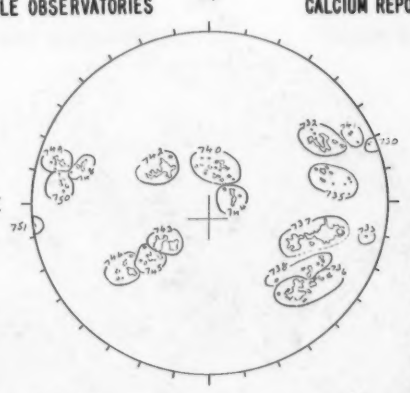


1530 UT

BOULDER PROMINENCES

1830 UT

HALE OBSERVATORIES CALCIUM REPORT



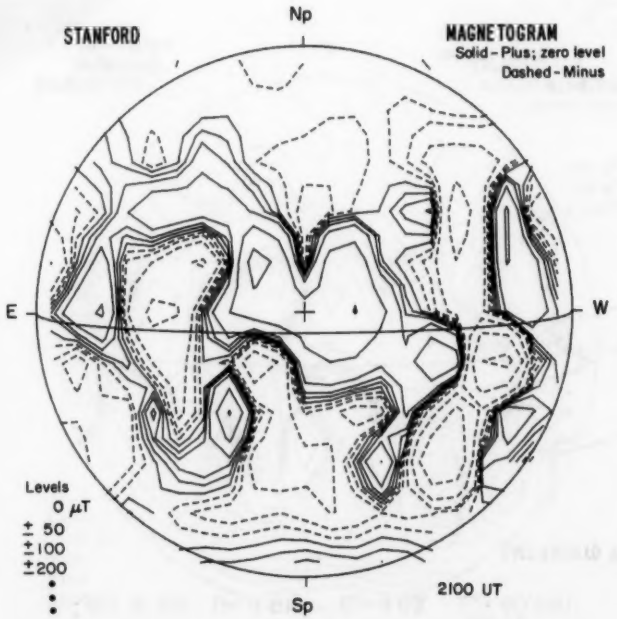
1632 UT

GOOD	JA

32- 1200-3.5
35- 0600-3.0
36- 1700-3.0
37- 2900-3.5
38- 0500-3.0
40- 0700-3.0
42- 1000-3.0
43- 1000-3.5
44- 0400-3.0
45- 0600-3.0
46- 0600-3.0
48- 0400-3.0
49- 0500-3.0
50- 0400-3.0
51- 0300-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



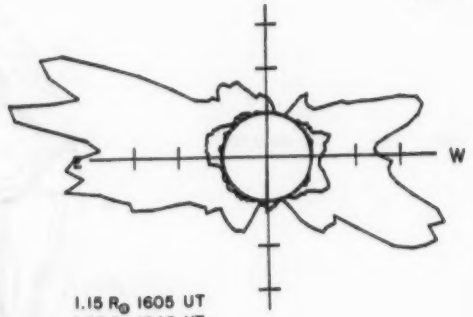
2100 UT

JULY 18, 1981 (P= 4.91, B_o = 4.63, L_o = 60.68)

SACRAMENTO PEAK

Np

CORONA
5303 Å



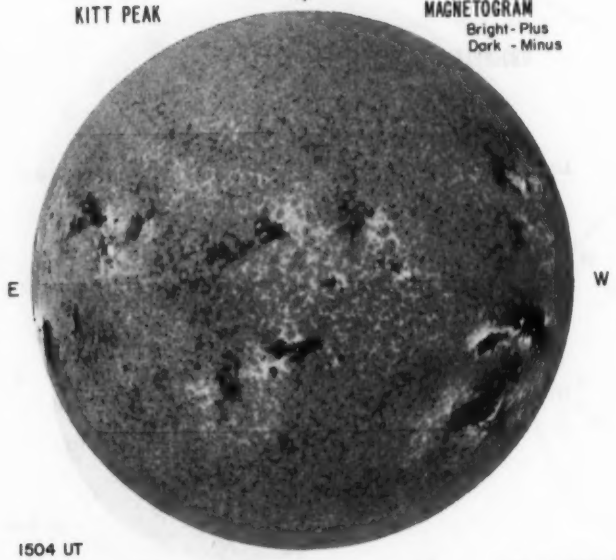
1.15 $R_\odot$ 1605 UT
1.35 $R_\odot$ 1545 UT
1.55 $R_\odot$ 1555 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1504 UT

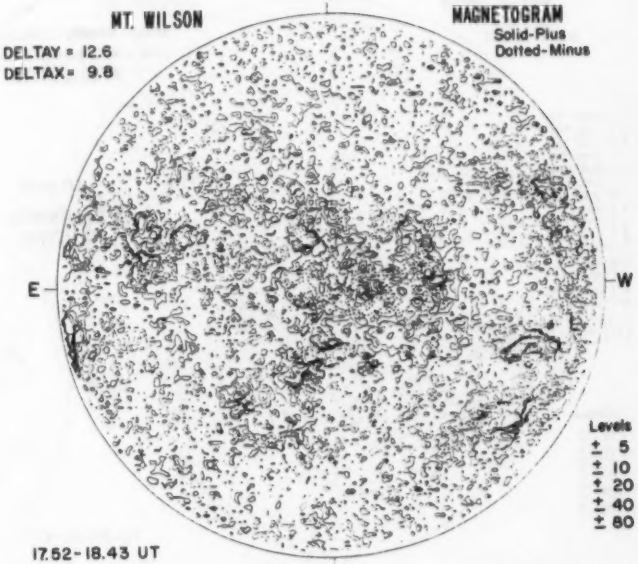
Sp

MT. WILSON

Np

DELTAY = 12.6
DELTAX = 9.8

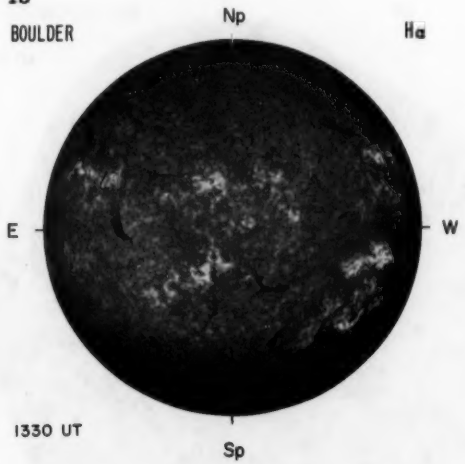
MAGNETOGRAM
Solid-Plus
Dotted-Minus



17.52 - 18.43 UT

Sp

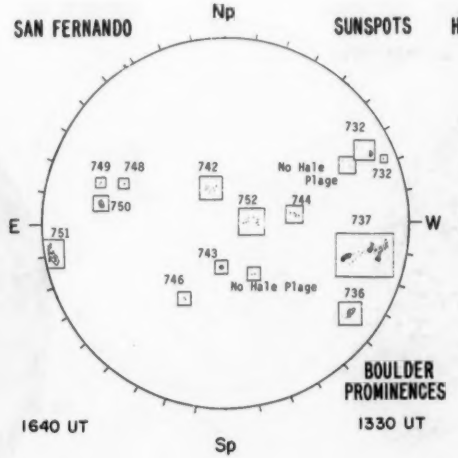
BOULDER



1330 UT

Hα

SAN FERNANDO



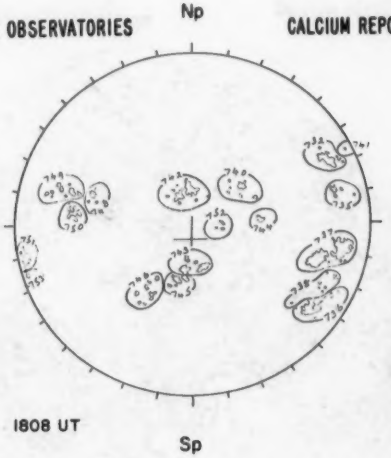
1640 UT

SUNSPOTS

BOULDER PROMINENCES

1330 UT

HALE OBSERVATORIES



1808 UT

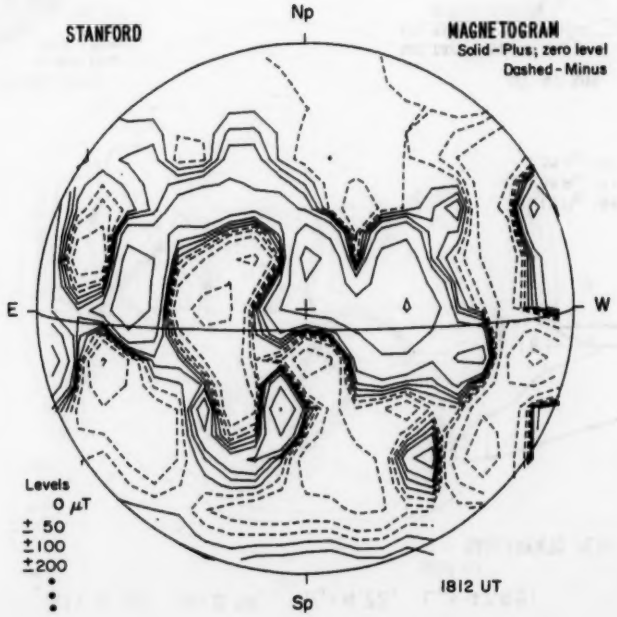
CALCIUM REPORT

GOOD	JA

32- 1100-3.5
35- 0500-2.5
36- 1400-3.5
37- 3000-4.0
38- 0300-3.0
40- 0500-3.0
42- 0800-3.0
43- 0700-3.0
44- 0200-3.0
45- 0500-3.0
46- 0600-3.0
48- 0400-3.0
49- 0800-3.0
50- 0500-2.5
51- 0900-3.5
52- 0200-3.0
53- 0300-3.0

STANFORD

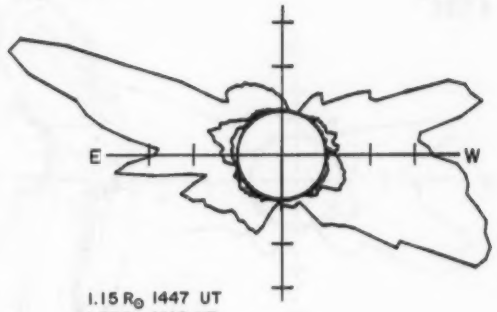
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



1812 UT

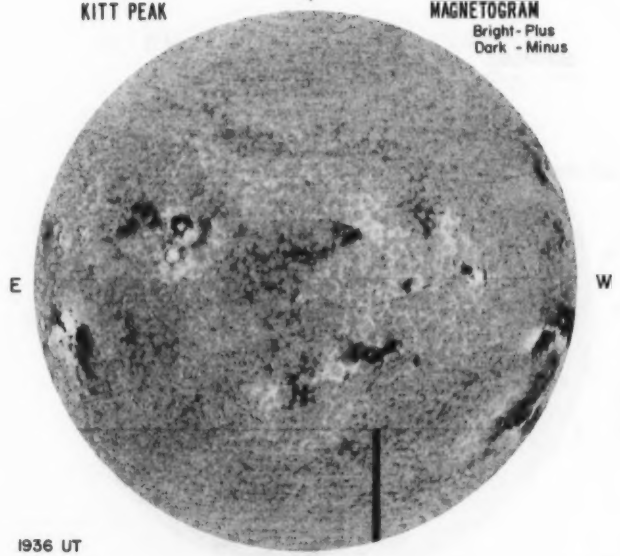
JULY 19, 1981 (P= 5.34, B_o= 4.72, L_o= 47.45)

SACRAMENTO PEAK Np CORONA 5303 Å



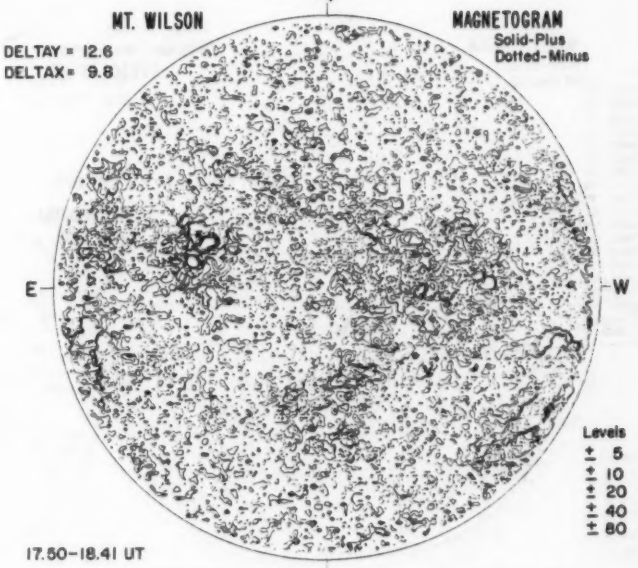
1.15 $R_\odot$ 1447 UT
1.35 $R_\odot$ 1418 UT
1.55 $R_\odot$ 1434 UT

KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus



1936 UT

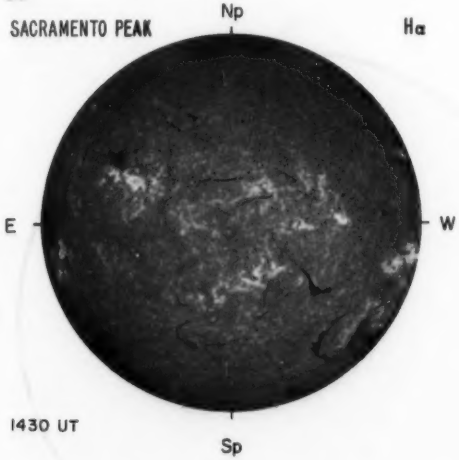
Sp
Np
MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus
DELTAY = 12.6
DELTAX = 9.8



17.50-18.41 UT

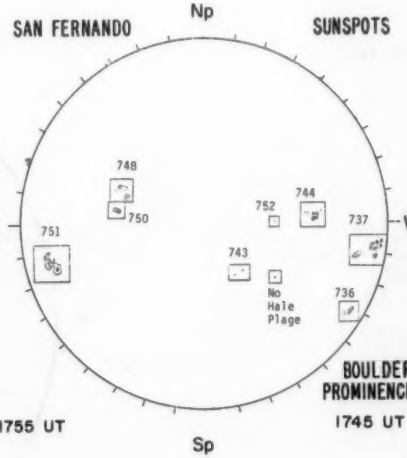
19

SACRAMENTO PEAK Hα



1430 UT

SAN FERNANDO SUNSPOTS

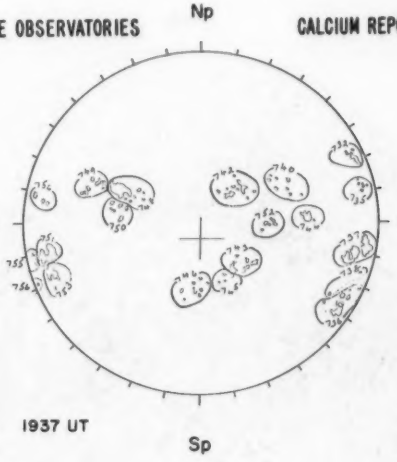


1755 UT

BOULDER PROMINENCES

1745 UT

HALE OBSERVATORIES CALCIUM REPORT



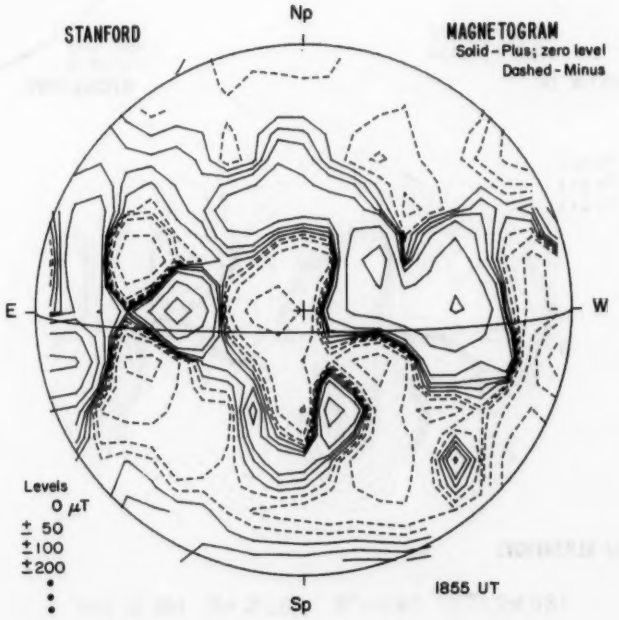
1937 UT

GOOD	JA

32- 0700-3.0
36- 1000-3.0
37- 2200-4.0
38- 0200-2.5
40- 0400-3.0
42- 0900-3.5
43- 0800-3.5
44- 0500-3.5
45- 0200-3.0
46- 0500-3.0
48- 1200-4.0
49- 0700-3.5
50- 0400-2.5
51- 1400-3.0
52- 0300-3.0
53- 1000-3.0
54- 0300-2.5
55- 0200-3.0
56- 0100-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



1855 UT

91
Jul 81

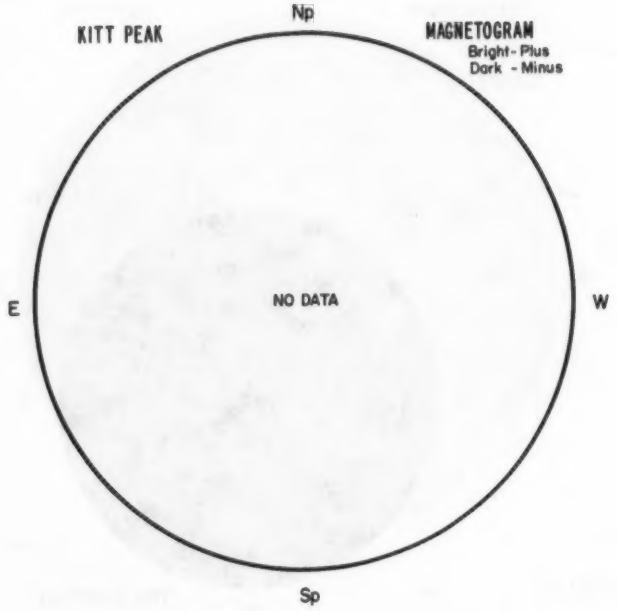
JULY 20, 1981 (P= 5.78, B_o = 4.81, L_o = 34.22)

SACRAMENTO PEAK Np CORONA 5303 Å

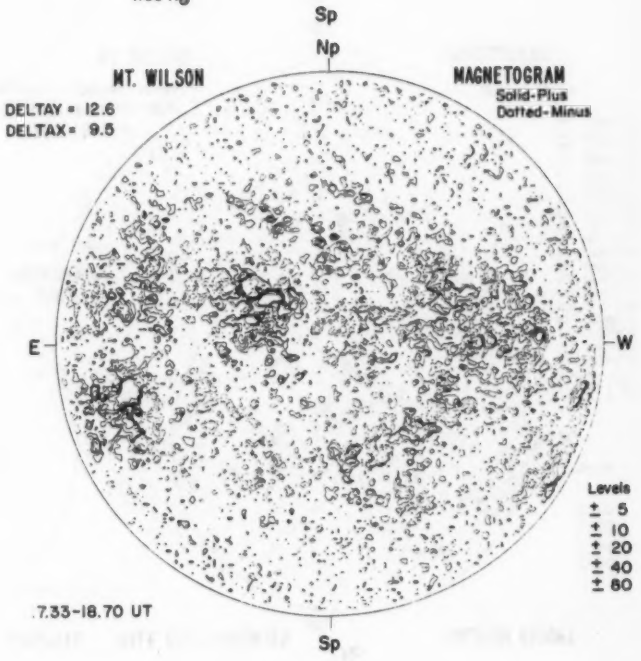
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

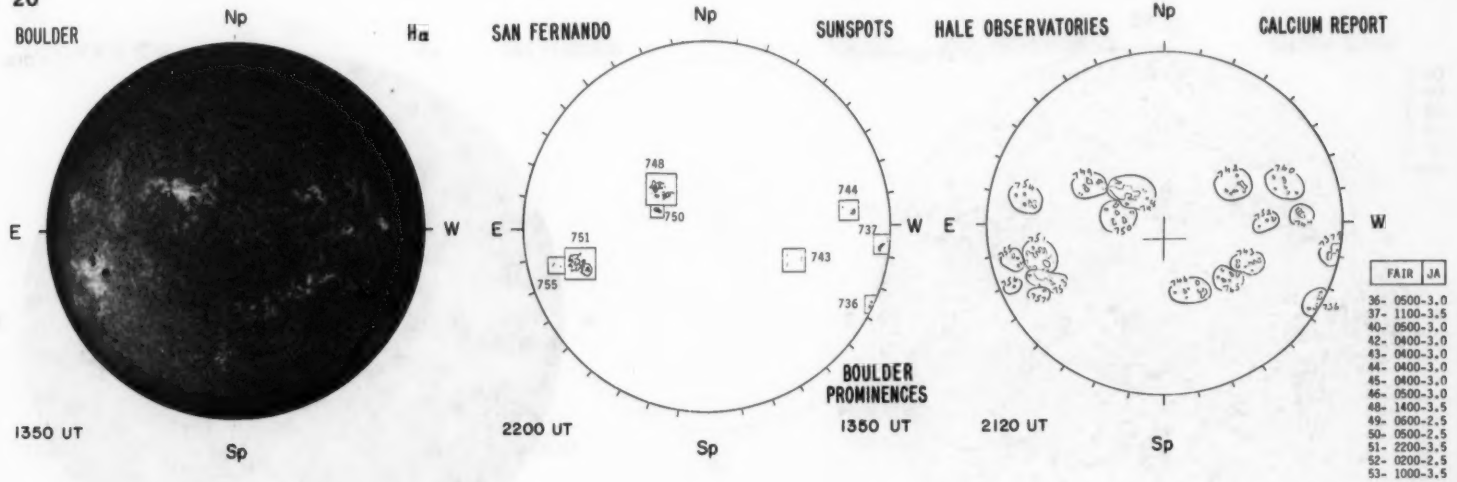


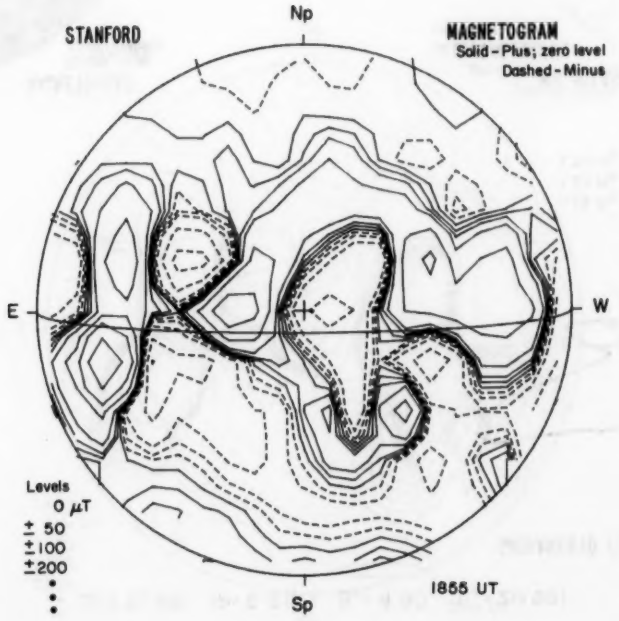
MT. WILSON



17.33-18.70 UT

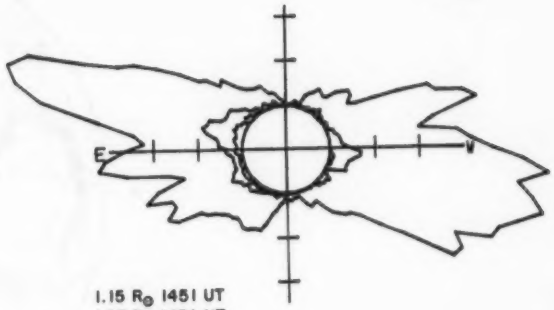
20


BOULDER
Np
Hα
E
W
Sp
1350 UT
SAN FERNANDO
SUNSPOTS
748
750
744
737
751
755
743
736
2200 UT
BOULDER
PROMINENCES
1350 UT
HALE OBSERVATORIES
CALCIUM REPORT
2120 UT
FAIR | JA
36- 0500-3.0
37- 1100-3.5
40- 0500-3.0
42- 0400-3.0
43- 0400-3.0
44- 0400-3.0
45- 0400-3.0
46- 0500-3.0
48- 1400-3.5
49- 0600-2.5
50- 0500-2.5
51- 2200-3.5
52- 0200-2.5
53- 1000-3.5


STANFORD
Np
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
E
W
Levels
0 μT
± 50
±100
±200
Sp
1855 UT

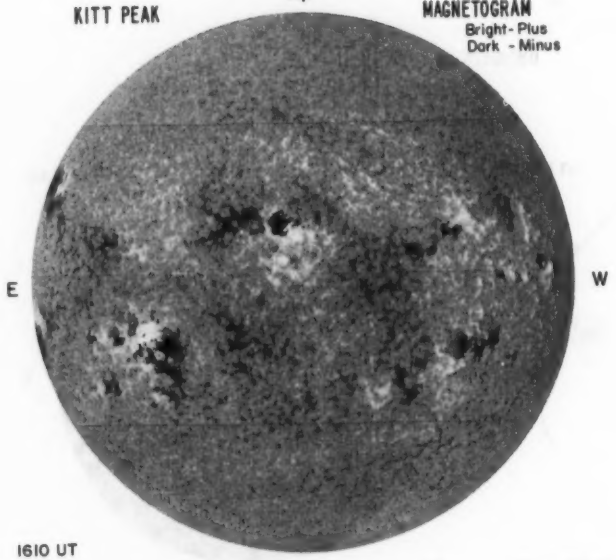
JULY 21, 1981 (P= 6.21, B_o = 4.90, L_o = 20.99)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1451 UT
1.35 $R_\odot$ 1431 UT
1.55 $R_\odot$ 1441 UT

KITT PEAK Np MAGNETOGRAM Bright-Plus Dark - Minus



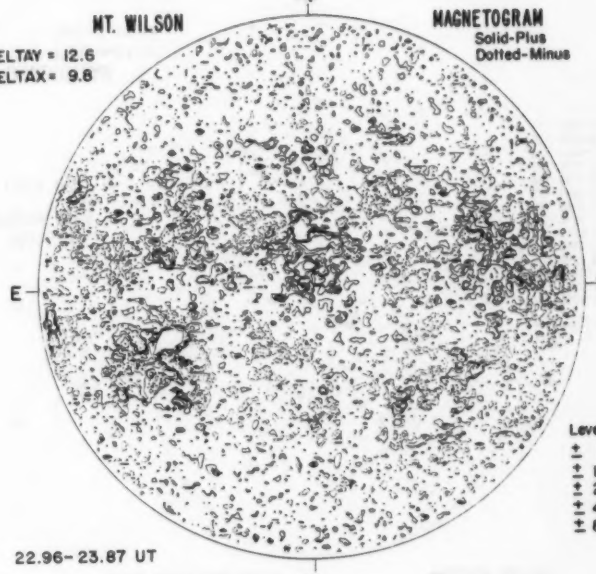
1610 UT

Sp

Sp Np

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.8

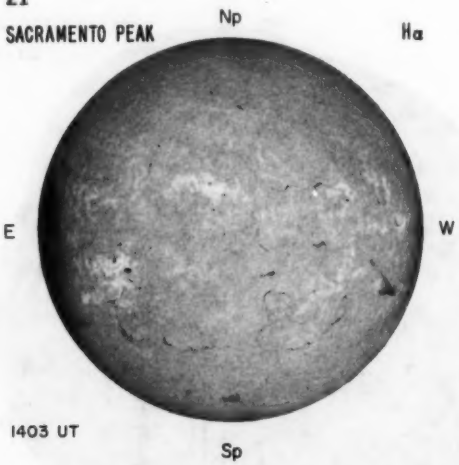


22.96-23.87 UT

Sp

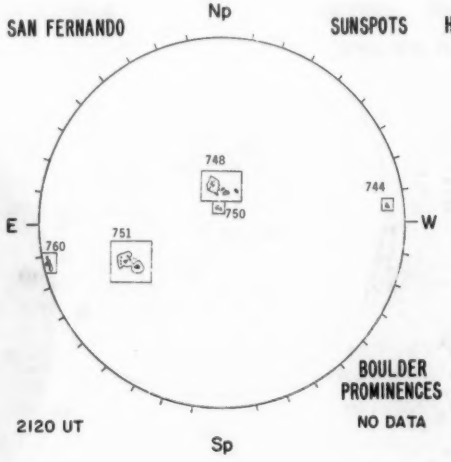
21

SACRAMENTO PEAK Hα



1403 UT

SAN FERNANDO SUNSPOTS

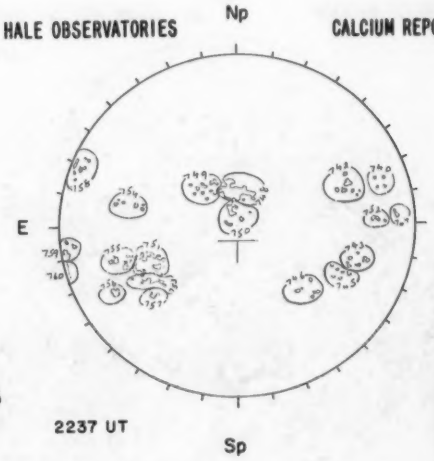


2120 UT

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES CALCIUM REPORT



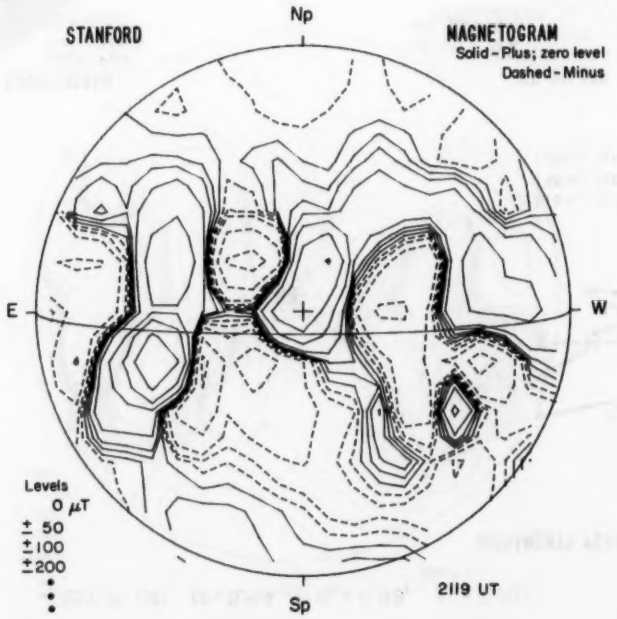
2237 UT

	GOOD	JA
40-	0200	2.5
42-	0600	3.0
43-	0400	3.0
44-	0200	3.0
45-	0300	3.0
46-	0400	3.0
48-	1600	3.5
49-	0600	3.0
50-	0500	2.5
51-	2000	3.5
52-	0300	3.0
53-	0500	3.0
54-	0300	3.0
55-	0600	3.0
56-	0300	3.5
57-	0200	3.0
58-	0600	3.0
59-	0900	3.0
60-	1200	3.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



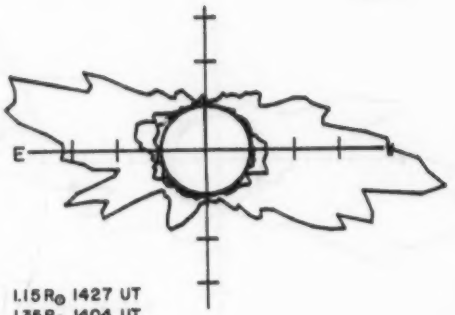
2119 UT

95

Jul 81

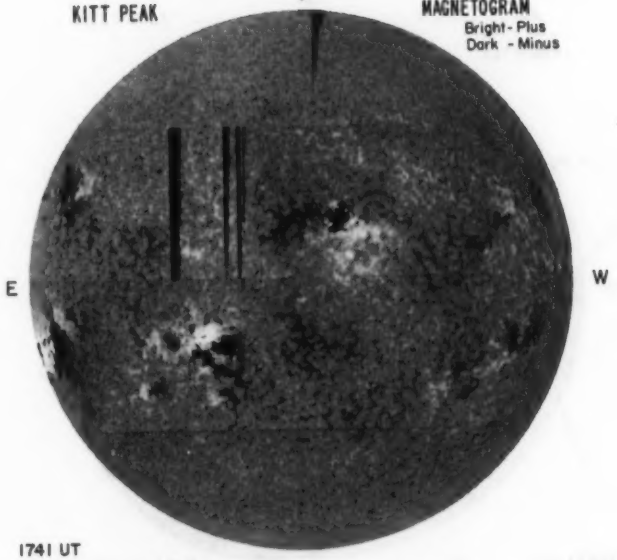
JULY 22, 1981 (P= 6.64, B_o = 4.99, L_o = 7.76)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1427 UT
1.35 $R_\odot$ 1404 UT
1.55 $R_\odot$ 1414 UT

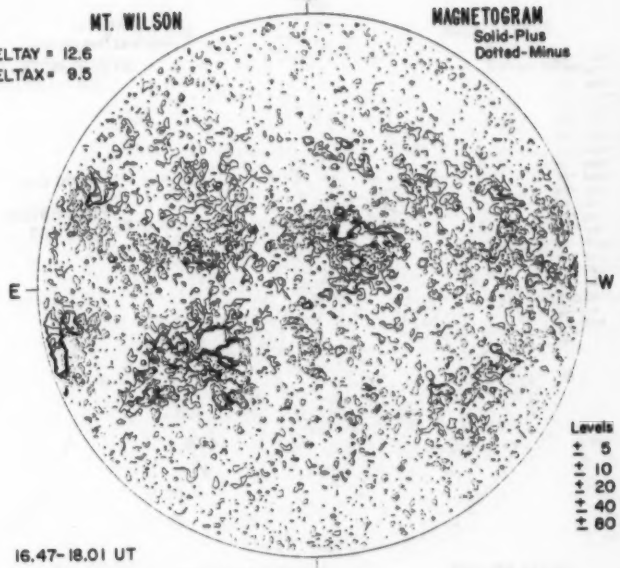
KITT PEAK Np MAGNETOGRAM Bright - Plus Dark - Minus



1741 UT

Sp Np MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

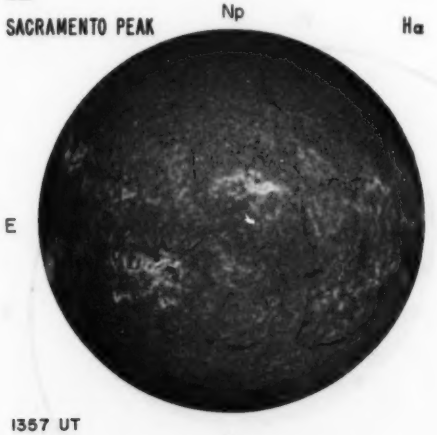
DELTAY = 12.6
DELTAX = 9.5



16.47-18.01 UT

22

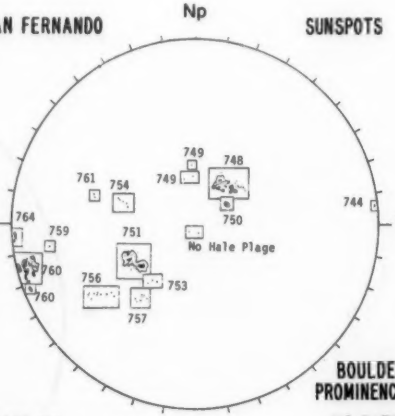
SACRAMENTO PEAK



Hα

1357 UT

SAN FERNANDO



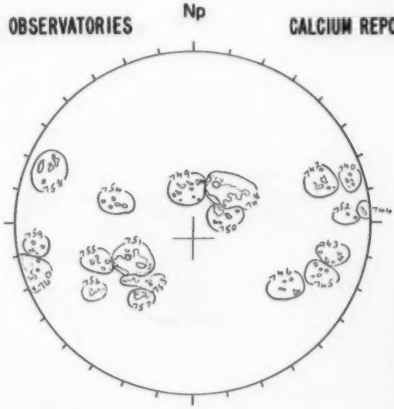
1830 UT

SUNSPOTS

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES



1639 UT

CALCIUM REPORT

GOOD	JA

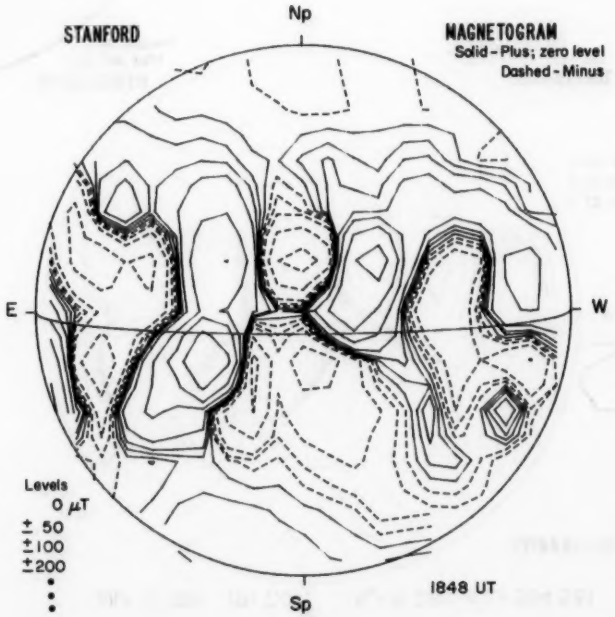
42- 0500-3.0
43- 0300-3.0
44- 0300-3.0
45- 0300-2.5
46- 0300-3.0
48- 2200-4.0
49- 0500-3.0
50- 0500-3.0
51- 2400-3.5
52- 0200-2.5
53- 0500-3.5
54- 0300-3.0
55- 0400-3.0
56- 0300-3.0
57- 0300-3.5
58- 1000-3.0
59- 0300-3.0
60- 1800-3.5

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



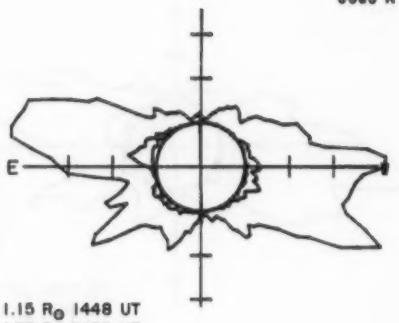
1848 UT

97

Jul 81

JULY 23, 1981 (P= 7.07, B_o = 5.08, L_o = 354.53)

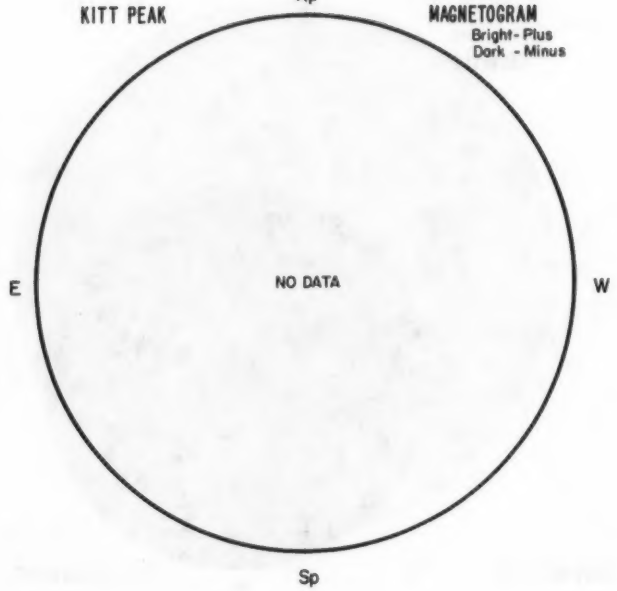
SACRAMENTO PEAK Np CORONA
5303 Å



1.15 $R_\odot$ 1448 UT
1.35 $R_\odot$ 1426 UT
1.55 $R_\odot$ 1435 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright- Plus
Dark - Minus



Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

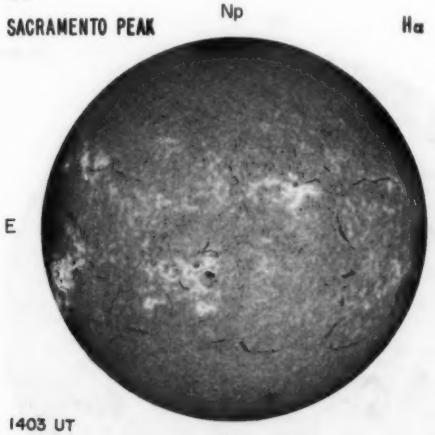
E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

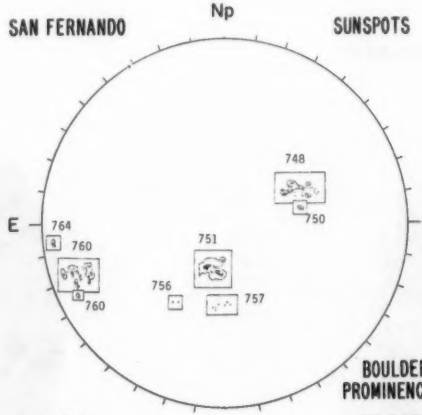
23

SACRAMENTO PEAK — Hα



1403 UT

SAN FERNANDO — SUNSPOTS

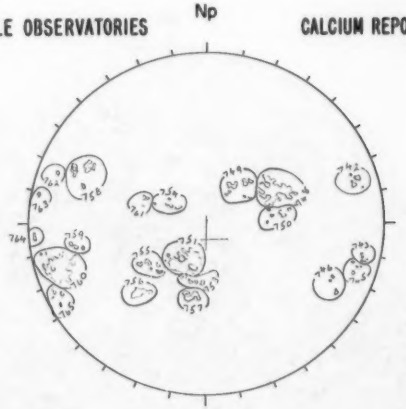


2215 UT

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES — CALCIUM REPORT



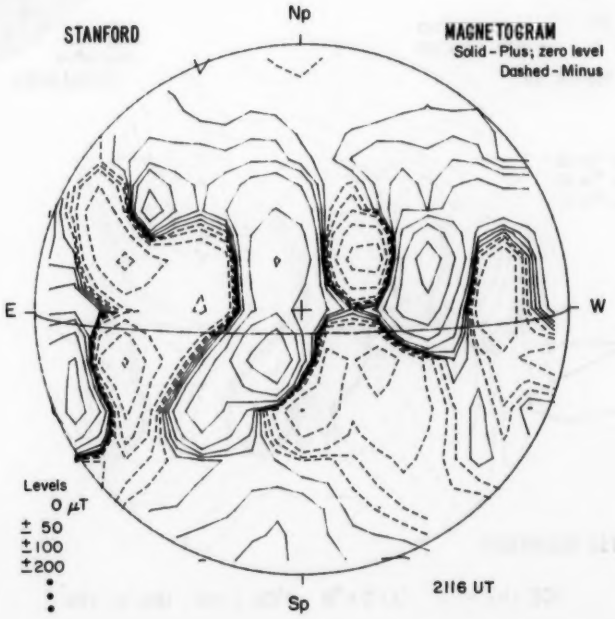
1646 UT

	GOOD	JA
42-	0400	3.0
43-	0300	2.5
45-	0200	2.5
46-	0300	3.0
48-	2500	4.0
49-	0800	3.5
50-	0400	3.0
51-	2400	3.5
53-	0400	3.5
54-	0300	3.0
55-	0500	3.0
56-	0600	3.5
57-	0500	3.5
58-	0800	3.0
59-	0300	3.0
60-	4200	3.5
61-	0200	3.0
62-	0200	3.0
63-	0200	2.5
64-	0300	3.0
65-	0500	3.0

STANFORD — MAGNETOGRAM

Solid - Plus; zero level

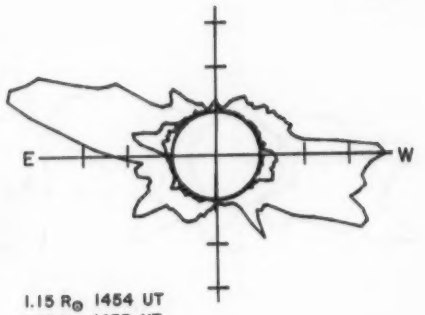
Dashed - Minus



2116 UT

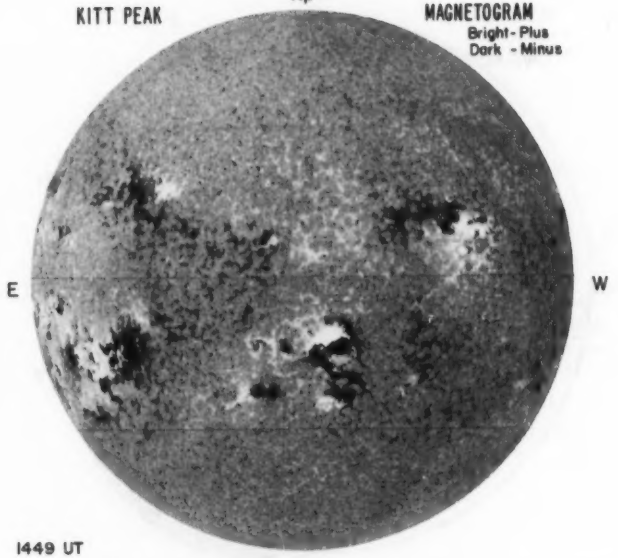
JULY 24, 1981 (P= 7.50, B_o = 5.17, L_o = 341.30)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1454 UT
1.35 $R_\odot$ 1433 UT
1.55 $R_\odot$ 1442 UT

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



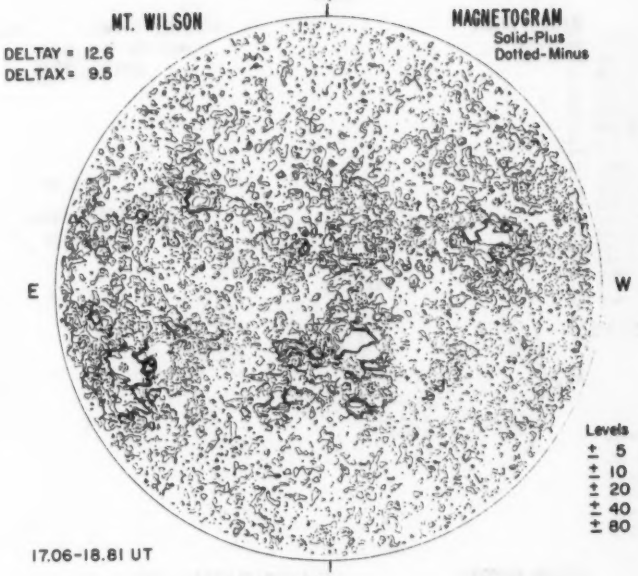
1449 UT

Sp

Sp Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

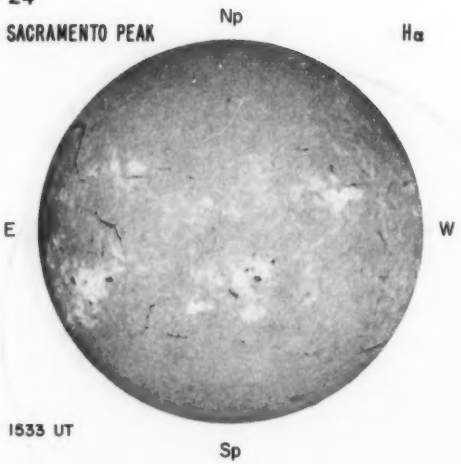


17.06-18.81 UT

Sp

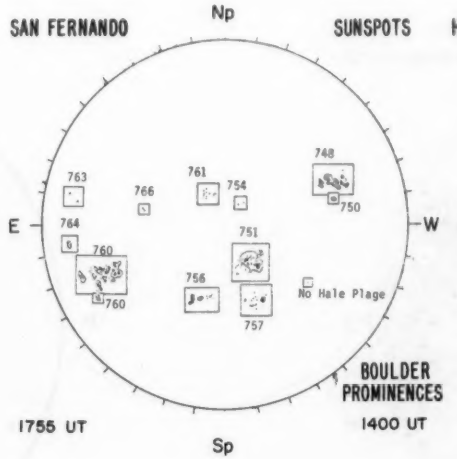
24

SACRAMENTO PEAK Hα



1533 UT

SAN FERNANDO SUNSPOTS

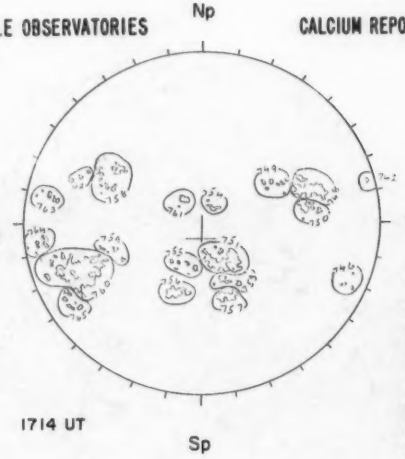


1755 UT

BOULDER PROMINENCES

1400 UT

HALE OBSERVATORIES CALCIUM REPORT



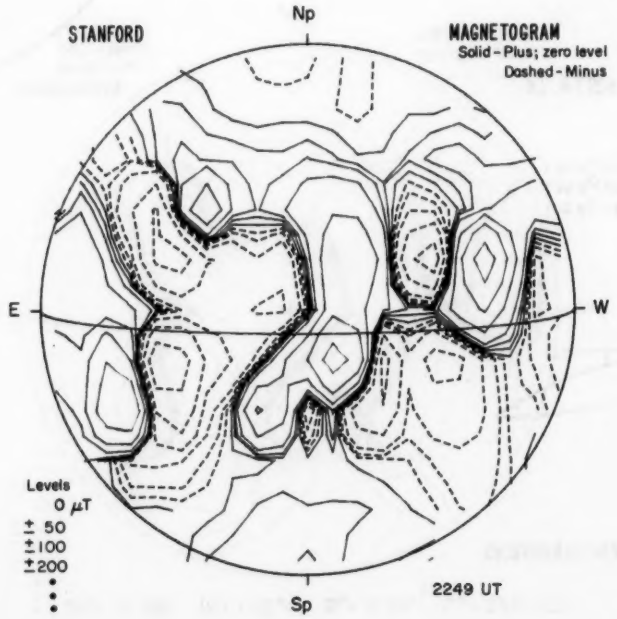
1714 UT

GOOD	JA

42- 0200-2.5
46- 0200-2.5
48- 2200-3.5
49- 0500-3.0
50- 0700-3.0
51- 2000-3.5
53- 0300-3.0
54- 0300-3.0
55- 0400-3.0
56- 0700-3.0
57- 0700-3.0
58- 1000-3.0
59- 0300-3.0
60- 5700-3.5
61- 0300-3.0
62- 0200-3.0
63- 0400-2.5
64- 0600-3.0
65- 0500-3.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



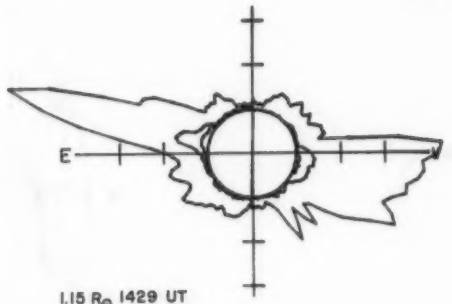
2249 UT

JULY 25, 1981 (P= 7.92, B_o= 5.25, L_o= 328.07)

SACRAMENTO PEAK

Np

CORONA
5303 Å



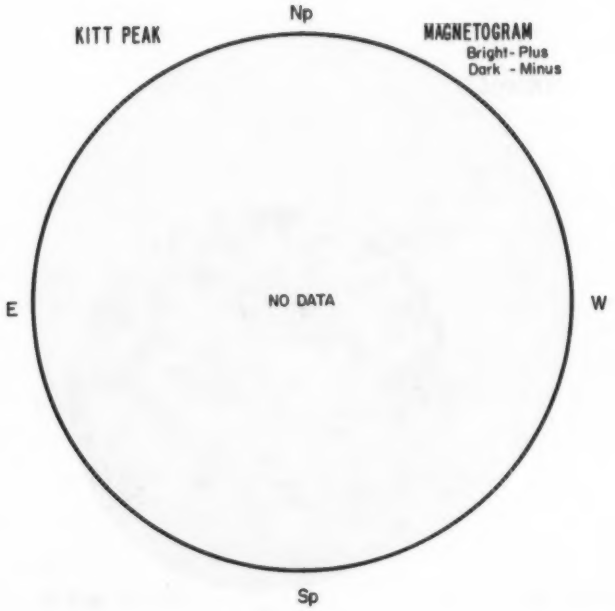
1.15 $R_\odot$ 1429 UT
1.35 $R_\odot$ 1409 UT
1.55 $R_\odot$ 1418 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright- Plus
Dark - Minus



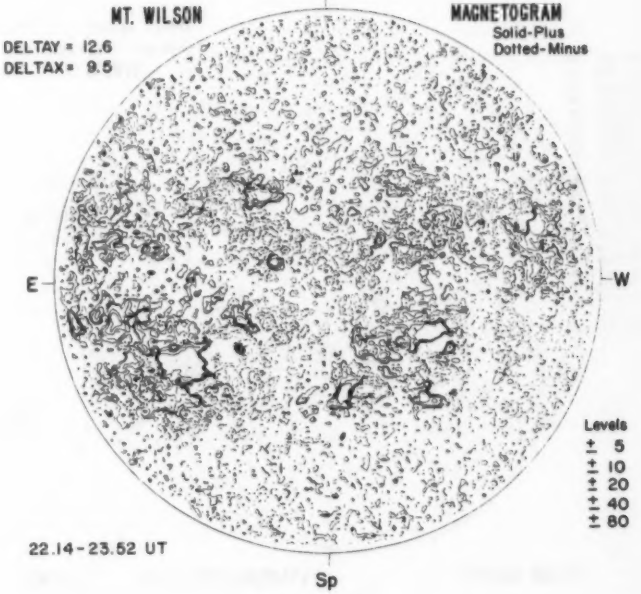
Sp

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

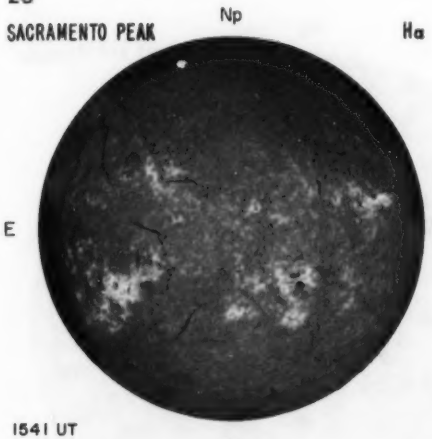


22.14-23.52 UT

Sp

25

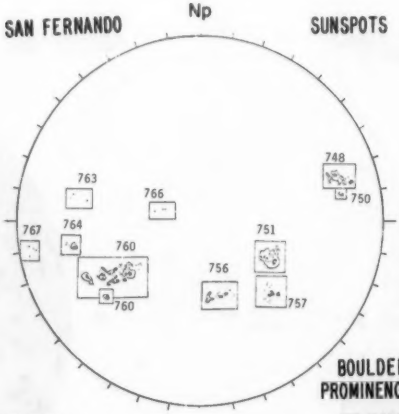
SACRAMENTO PEAK



Hα

1541 UT

SAN FERNANDO



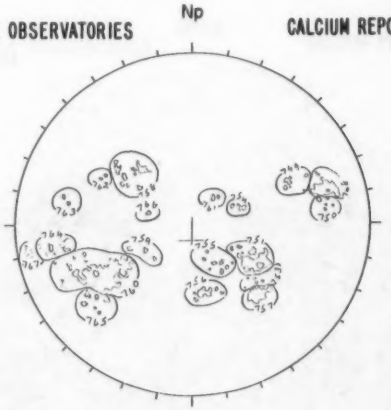
SUNSPOTS

1850 UT

BOULDER PROMINENCES

NO DATA

HALE OBSERVATORIES



1715 UT

CALCIUM REPORT

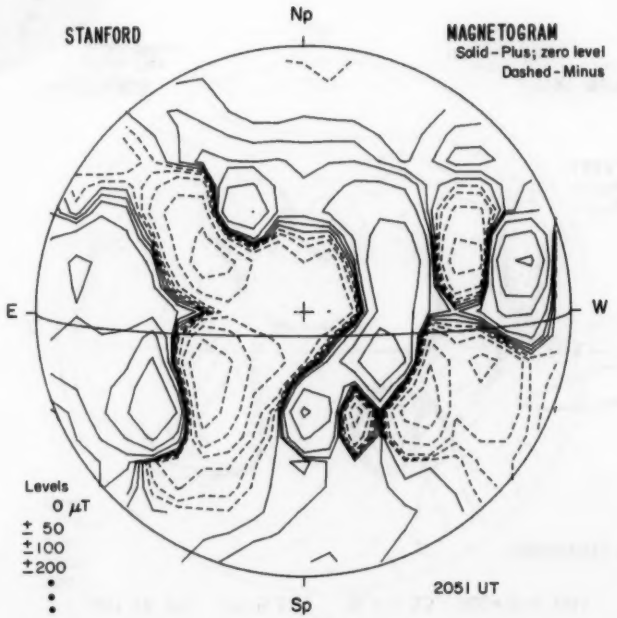
	GOOD	JA
48-	1900-3.5	
49-	0400-2.5	
50-	0300-2.5	
51-	2000-3.5	
53-	0200-3.0	
54-	0300-3.0	
55-	0400-3.0	
56-	0600-3.0	
57-	1300-3.5	
58-	1100-3.0	
59-	0300-3.0	
60-	6200-3.5	
61-	0200-3.0	
64-	0800-3.0	
65-	0600-3.0	
66-	0100-3.0	
67-	0500-3.5	

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

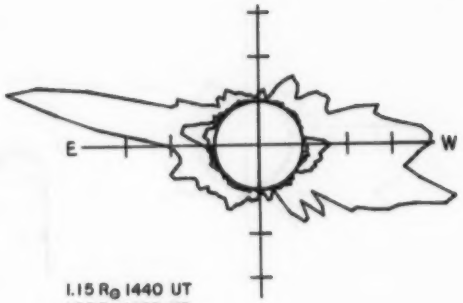
Dashed - Minus



2051 UT

JULY 26, 1981 (P= 8.34, B_o = 5.33, L_o = 314.84)

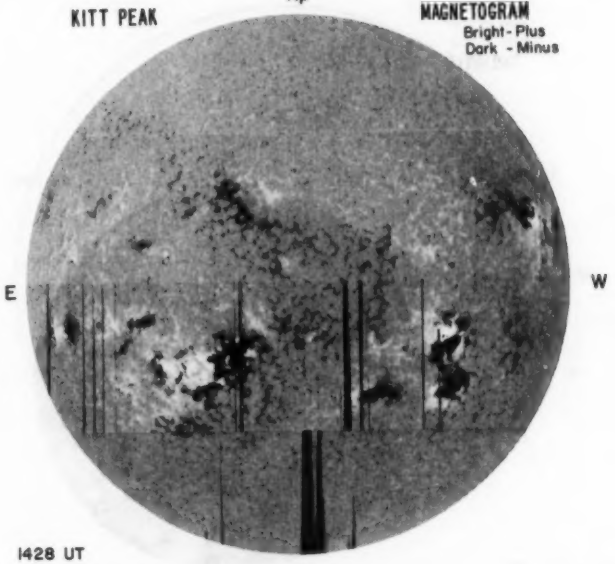
SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1440 UT
1.35 $R_\odot$ 1420 UT
1.55 $R_\odot$ 1430 UT

Sp

KITT PEAK Np MAGNETOGRAM Bright-Plus Dark-Minus



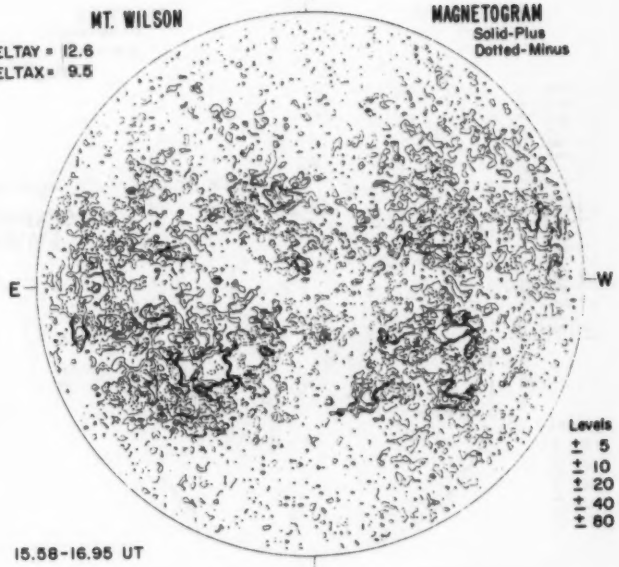
1428 UT

Sp

Np

MT. WILSON MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

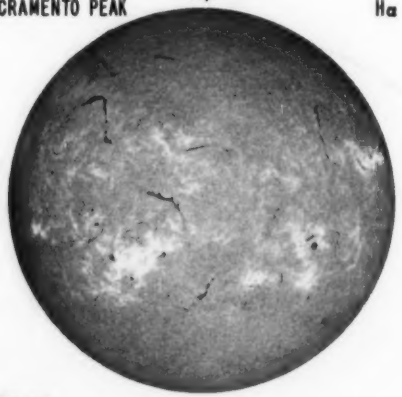


15.58-16.95 UT

Sp

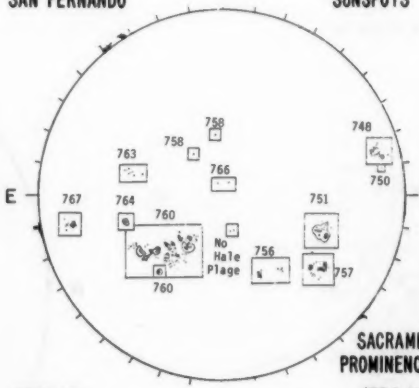
26

SACRAMENTO PEAK Hα



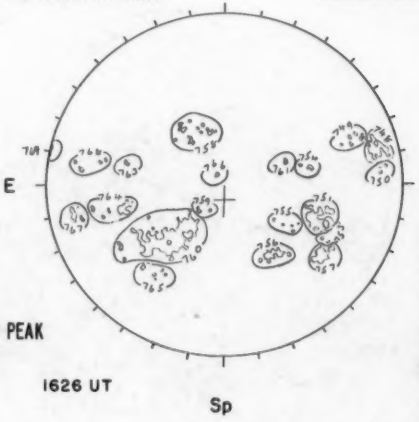
1550 UT

SAN FERNANDO SUNSPOTS



1730 UT

HALE OBSERVATORIES CALCIUM REPORT



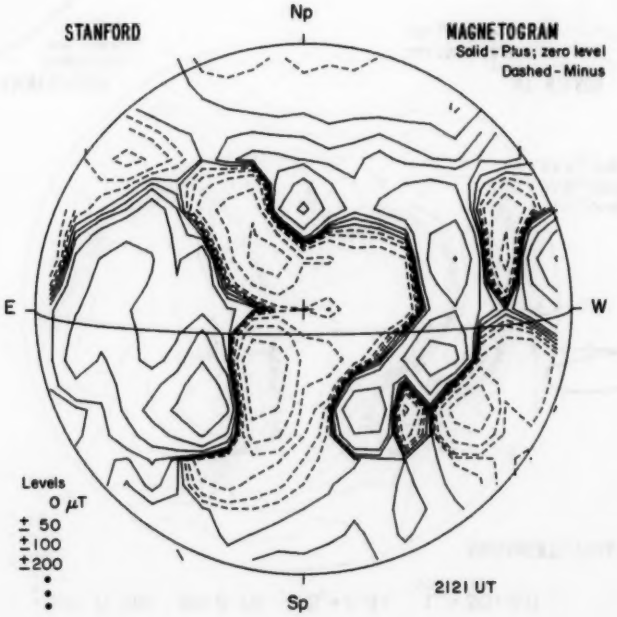
SACRAMENTO PEAK PROMINENCES

1324 UT 1626 UT

FAIR	JA
48-	1800-3.5
49-	0500-2.5
50-	0300-2.5
51-	2000-3.0
53-	0200-2.5
54-	0200-3.0
56-	0700-3.0
57-	1200-3.0
58-	0800-3.0
59-	0200-2.5
60-	6200-3.5
61-	0100-2.5
63-	0100-3.0
64-	0800-3.0
65-	0300-3.0
66-	0100-2.5
67-	0600-3.5
68-	0400-2.5
69-	0200-2.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

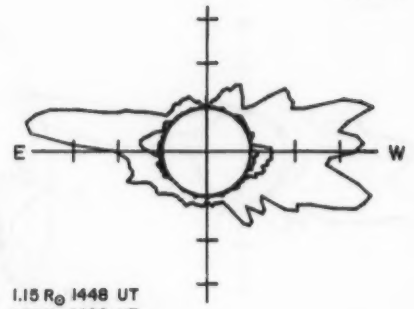


2121 UT

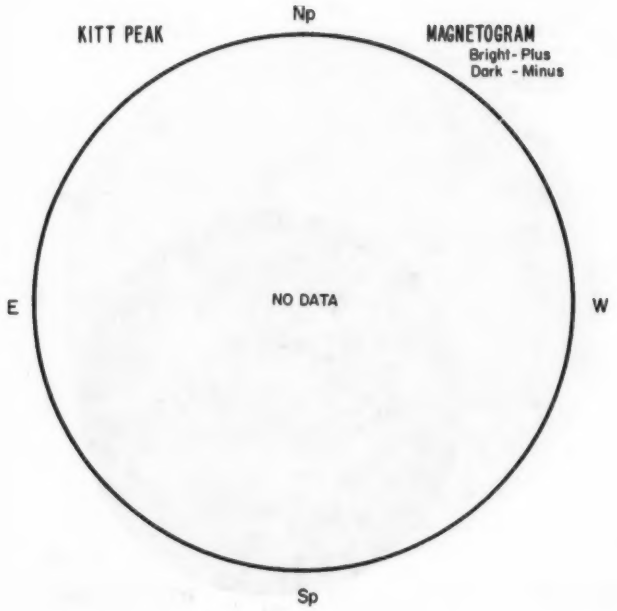
105
Jul 81

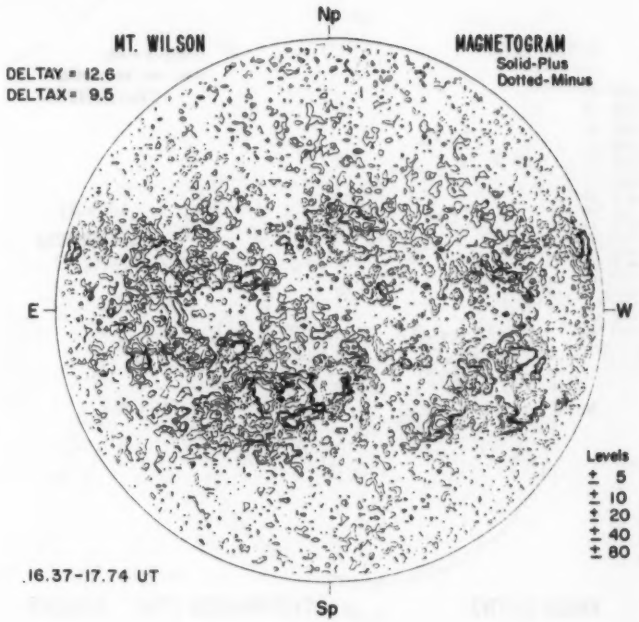
JULY 27, 1981 (P= 8.76, B_o= 5.41, L_o= 301.61)

SACRAMENTO PEAK



1.15 $R_\odot$ 1448 UT
1.35 $R_\odot$ 1428 UT
1.55 $R_\odot$ 1437 UT





27

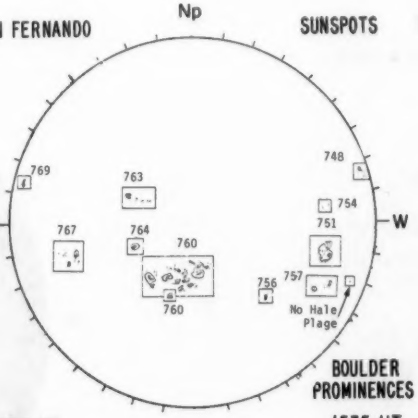
SACRAMENTO PEAK

Hα

1458 UT

SAN FERNANDO

SUNSPOTS



1730 UT

HALE OBSERVATORIES

CALCIUM REPORT

1733 UT

	GOOD	JA
48-	0600-3.5	
49-	0200-2.5	
51-	1800-3.5	
54-	0100-2.5	
55-	0300-2.5	
56-	0700-3.5	
57-	1000-3.5	
58-	1000-3.0	
59-	0300-3.0	
60-	6000-4.5	
61-	0200-2.5	
63-	0500-3.0	
64-	0900-3.0	
65-	0400-3.0	
66-	0100-2.5	
67-	0600-3.0	
68-	0300-2.5	
69-	0700-3.5	

BOULDER PROMINENCES

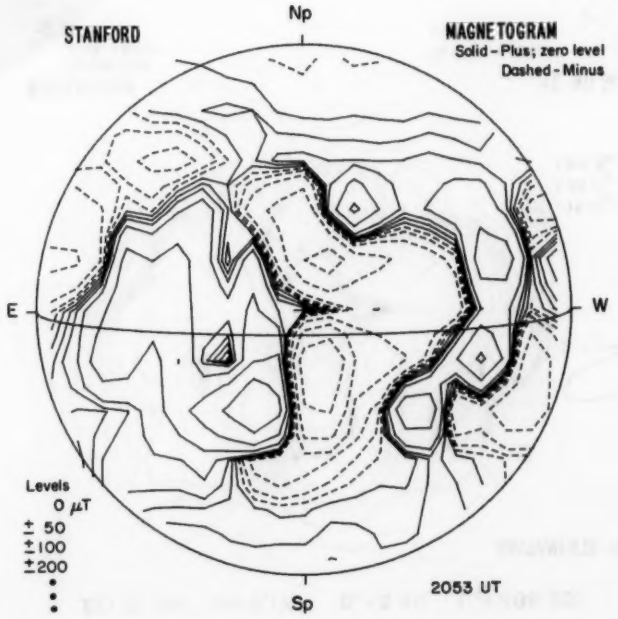
1535 UT

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



2053 UT

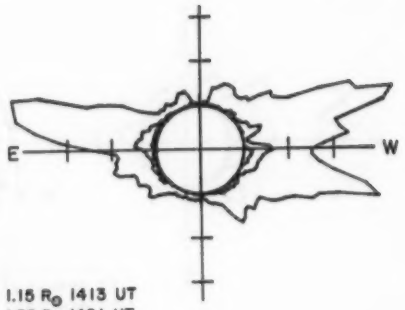
107
Jul 81

JULY 28, 1981 (P= 9.17, B_o= 5.49, L_o= 288.39)

SACRAMENTO PEAK

Np

CORONA
5303 Å



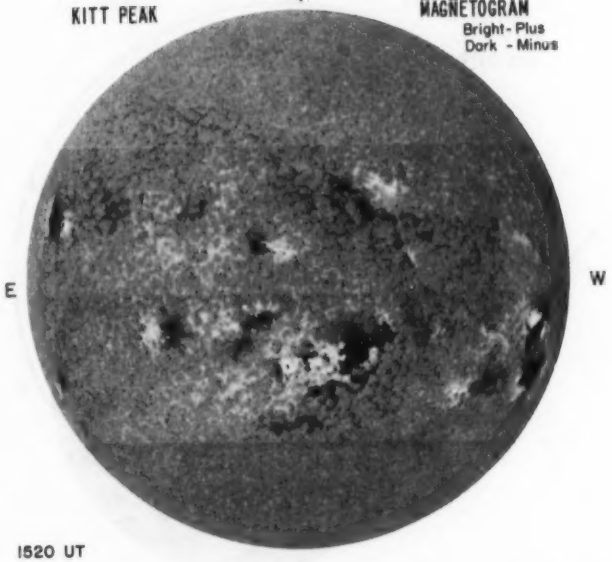
1.15 $R_\odot$ 1413 UT
1.35 $R_\odot$ 1421 UT
1.55 $R_\odot$ 1430 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright- Plus
Dark - Minus



1520 UT

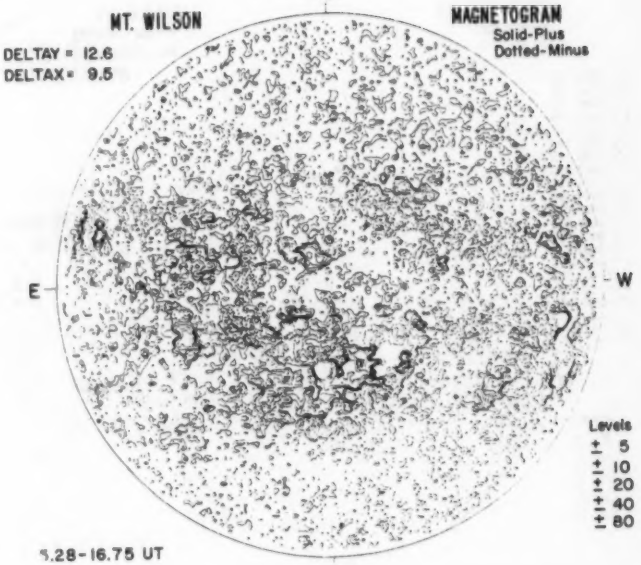
Sp

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

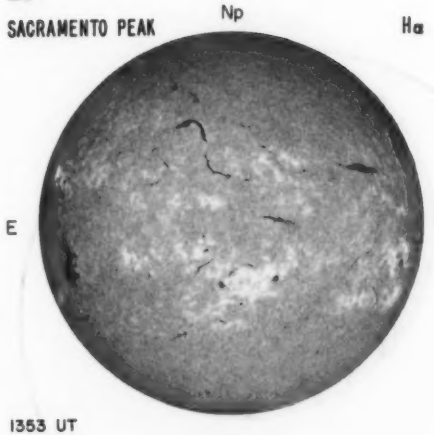


5.28-16.75 UT

Sp

28

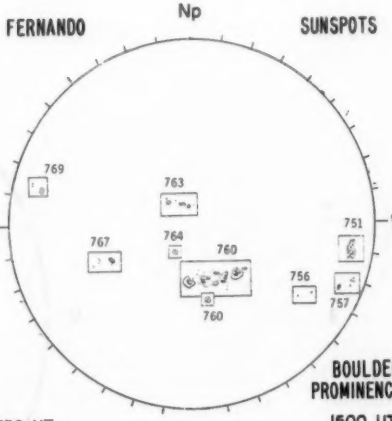
SACRAMENTO PEAK



1353 UT

Hα

SAN FERNANDO



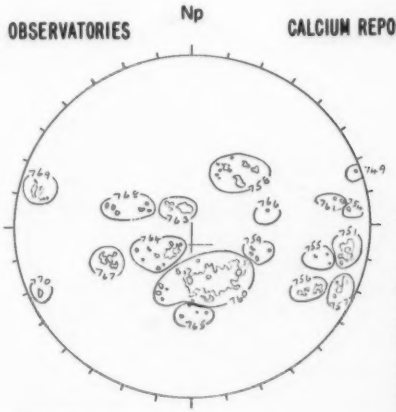
1750 UT

SUNSPOTS

BOULDER PROMINENCES

1500 UT

HALE OBSERVATORIES



1759 UT

CALCIUM REPORT

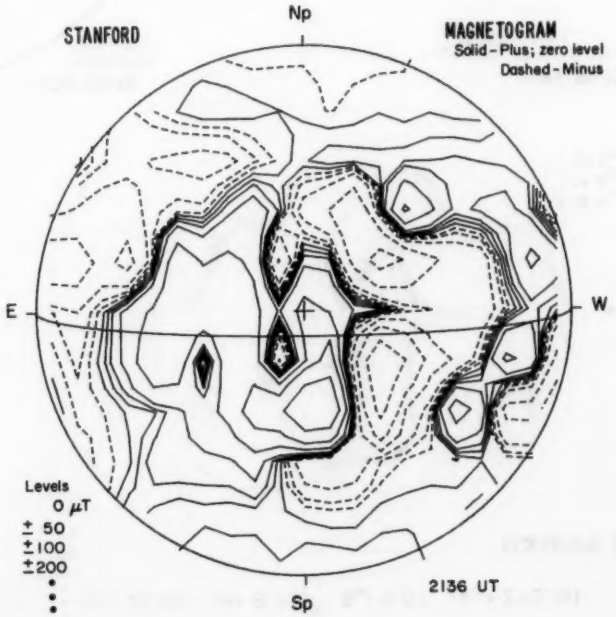
GOOD	JA
51- 1300-3.0	
54- 0100-3.0	
56- 0700-3.0	
57- 0900-3.0	
58- 1100-3.0	
59- 0400-3.0	
60- 0300-3.5	
61- 0200-3.0	
63- 0900-3.0	
64- 1000-3.0	
65- 0200-2.5	
66- 0100-3.0	
67- 0600-3.0	
68- 0500-3.0	
69- 0700-3.0	
70- 0400-3.0	

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

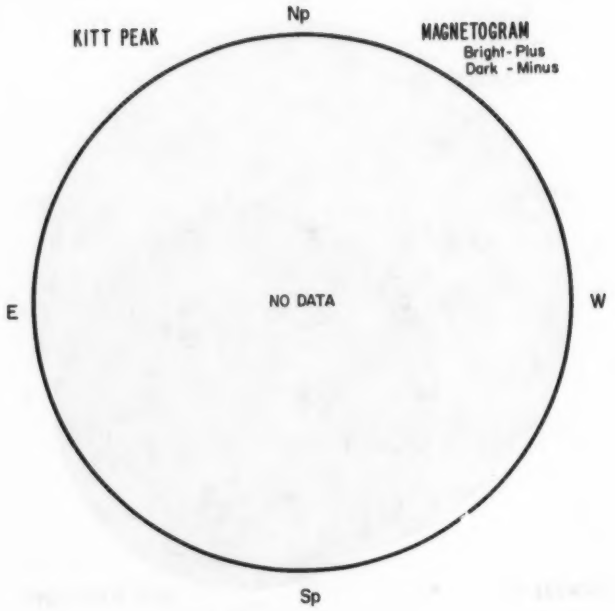


2136 UT

109
Jul 81

JULY 29, 1981 (P= 9.58, B_o= 5.57, L_o= 275.16)

KITT PEAK



MAGNETOGRAM
Bright - Plus
Dark - Minus

SACRAMENTO PEAK

Np

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

Np

MT. WILSON

DELTAY =
DELTAX =

E NO DATA W

Sp

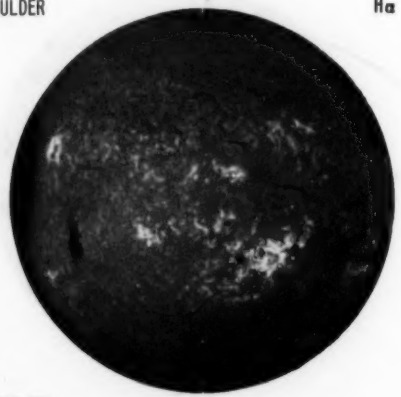
CORONA
5303 Å

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Levels
± 5
± 10
± 20
± 40
± 80

29

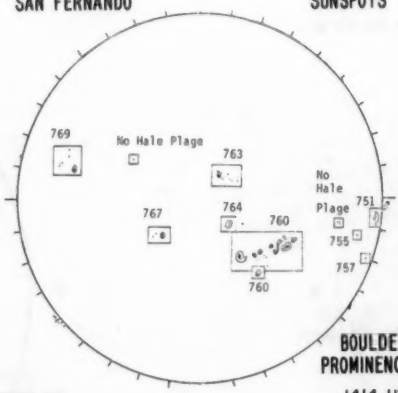
BOULDER



1414 UT

Hα

SAN FERNANDO



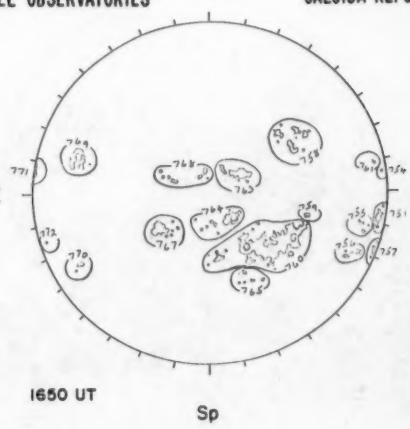
1850 UT

SUNSPOTS

BOULDER PROMINENCES

1414 UT

HALE OBSERVATORIES



1650 UT

CALCIUM REPORT

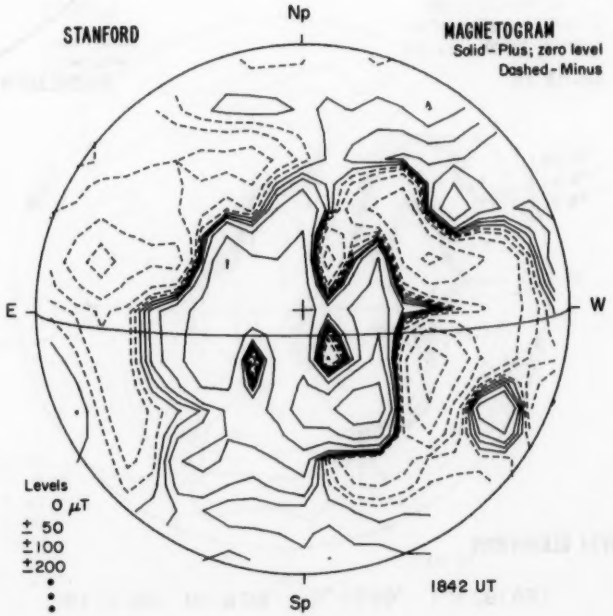
GOOD	JA
51-	0700-3.0
55-	0200-3.0
56-	0500-3.0
57-	0400-3.0
58-	1200-3.0
59-	0100-3.0
60-	6500-3.5
63-	0900-3.0
64-	0900-3.0
65-	0300-3.0
67-	1000-3.5
68-	0400-3.0
69-	1100-3.5
70-	0200-3.0
71-	0400-3.0

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



1842 UT

111

Jul 81

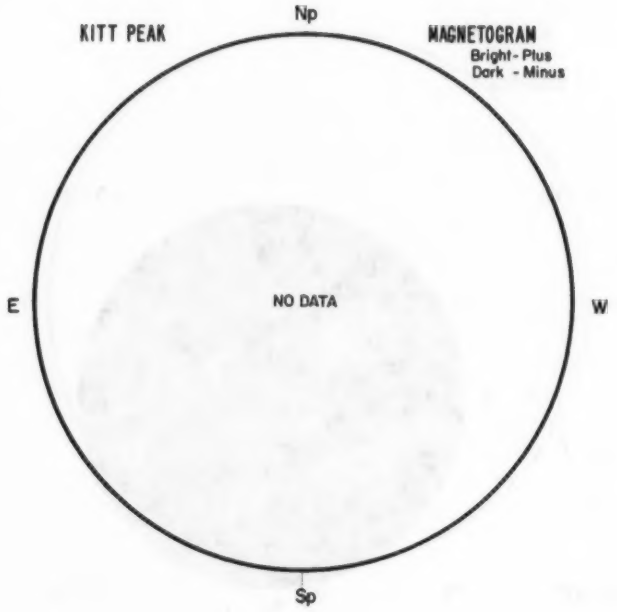
JULY 30, 1981 (P= 9.99, B_o= 5.65, L_o= 261.93)

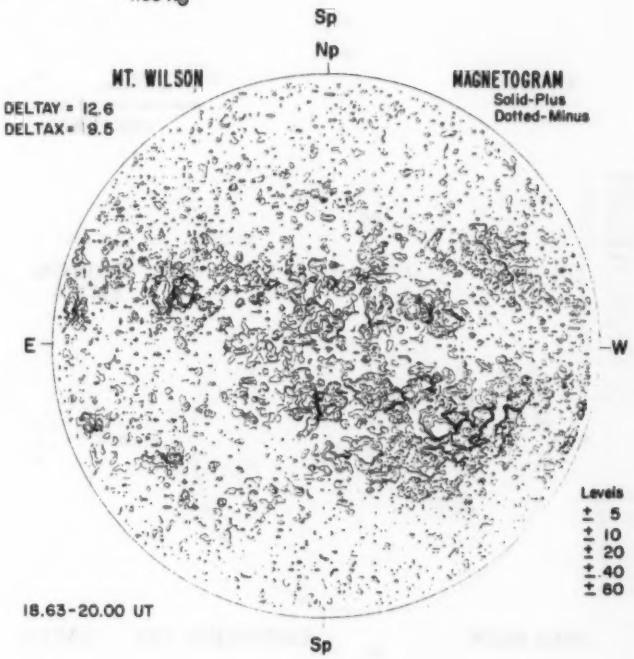
SACRAMENTO PEAK Np CORONA
5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

KITT PEAK

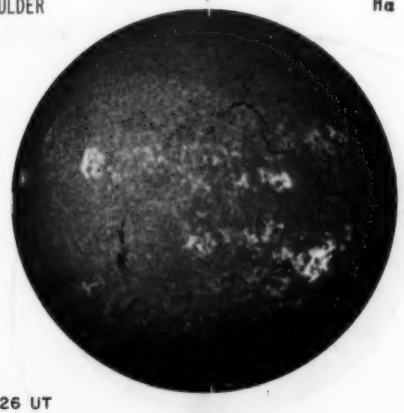




30

30

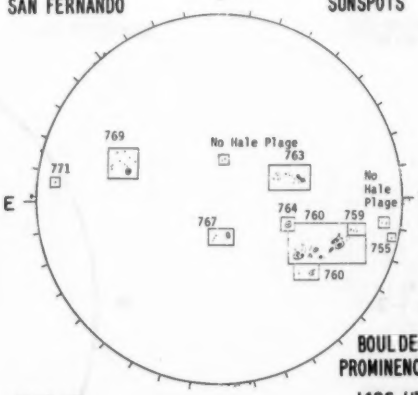
BOULDER



1426 UT

Hα

SAN FERNANDO



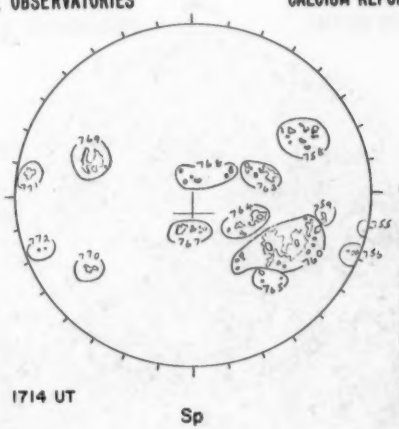
1945 UT

SUNSPOTS

BOULDER PROMINENCES

1426 UT

HALE OBSERVATORIES



1714 UT

CALCIUM REPORT

G000	JA

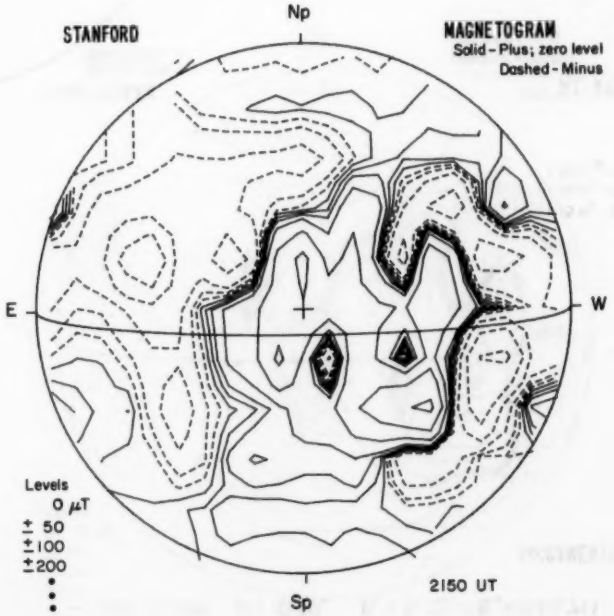
55- 0100-2.5
56- 0300-2.5
58- 1100-3.0
59- 0300-3.0
60- 5700-3.5
63- 1000-3.0
64- 1100-3.0
65- 0200-2.5
67- 0500-3.0
68- 0400-2.5
69- 1300-3.0
70- 0300-3.0
71- 0700-3.5
72- 0100-2.5

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



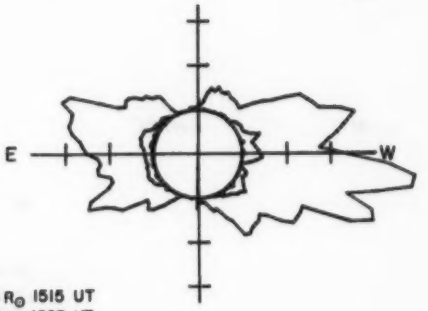
2150 UT

JULY 31, 1981 (P= 10.39, B_o = 5.72, L_o = 248.71)

SACRAMENTO PEAK

Np

CORONA
5303 Å



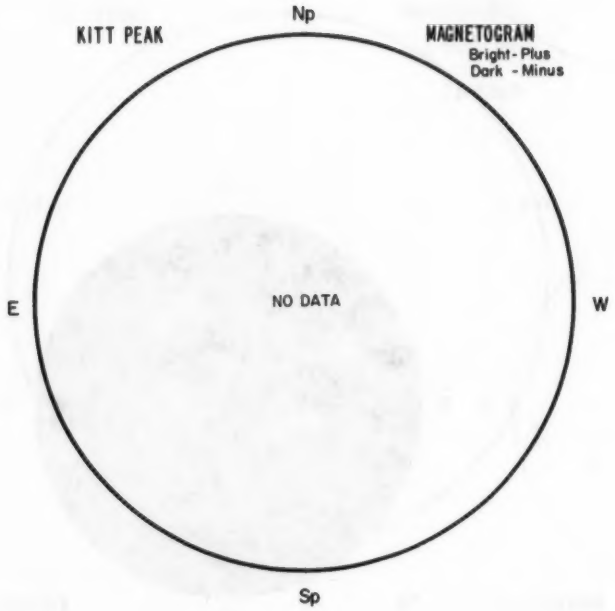
1.15 $R_\odot$ 1515 UT
1.35 $R_\odot$ 1523 UT
1.55 $R_\odot$ 1533 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

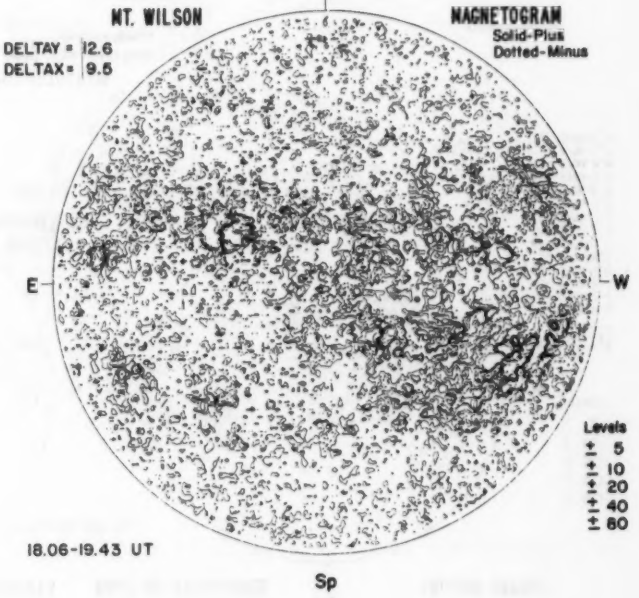


MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

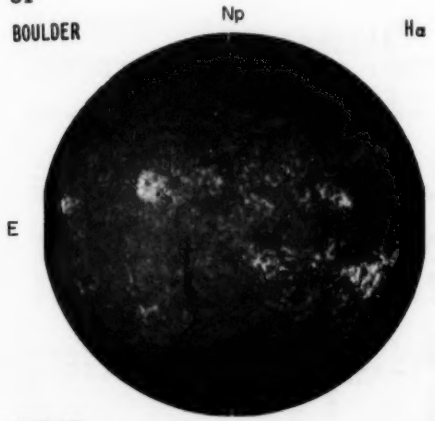


18.06-19.43 UT

Sp

31

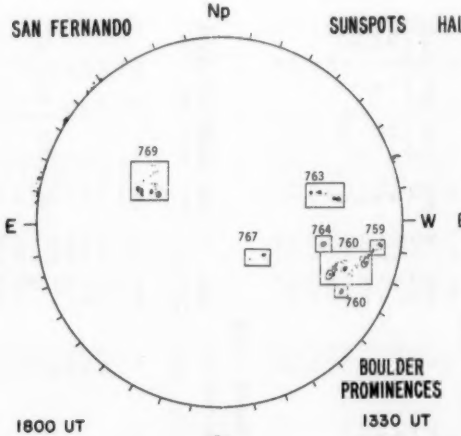
BOULDER



Hα

1330 UT

SAN FERNANDO



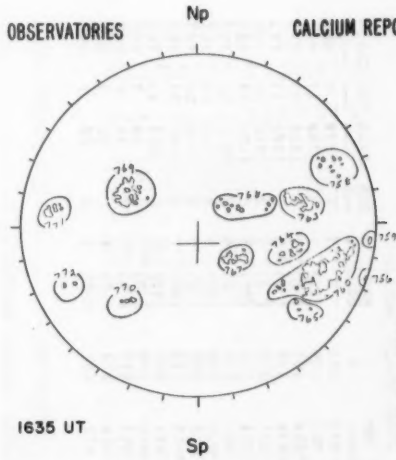
1800 UT

SUNSPOTS

BOULDER PROMINENCES

1330 UT

HALE OBSERVATORIES



1635 UT

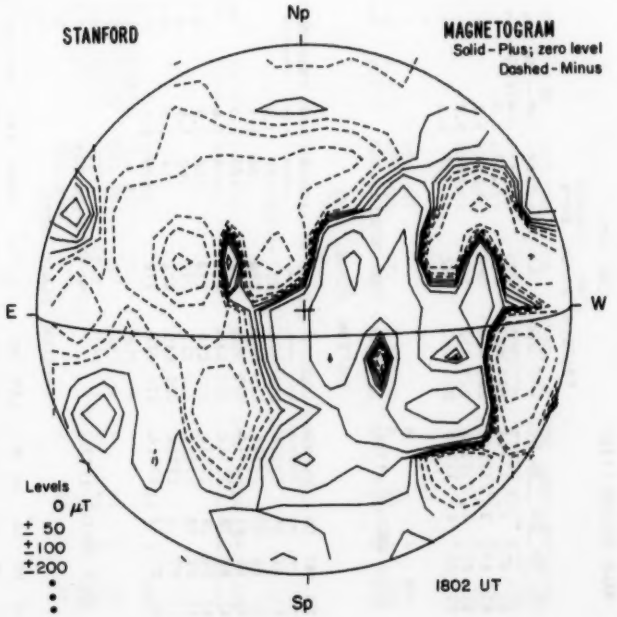
CALCIUM REPORT

GOOD	JA

58- 0600-3.0
59- 0300-3.0
60- 5500-3.5
63- 1300-3.0
64- 0600-3.0
65- 0300-2.5
67- 0800-3.0
68- 0500-3.0
69- 1900-3.5
70- 0300-3.0
71- 0800-3.5
72- 0200-3.0

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



1802 UT

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17713 CMP DATE 1.4

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
81	06	25	17713	S16	E75	280	1200	3.0
81	06	26	17713	S16	E63	279	1400	3.5
81	06	27	17713	S16	E49	281	2200	3.5
81	06	28	17713	S16	E36	280	2600	4.0
81	06	29	17713	S15	E23	281	3000	3.5
81	06	30	17713	S15	E11	278	2900	4.0
81	07	1	17713	S15	W04	281	3100	4.0
81	07	2	17713	S15	W15	279	3100	4.0
81	07	3	17713	S15	W30	280	3300	4.0
81	07	4	17713	S15	W41	278	3600	3.5
81	07	4	17713	S15	W41	278	3600	3.5
81	07	5	17713	S15	W58	281	2800	3.5
81	07	5	17713	S15	W58	281	2800	3.5
81	07	6	17713	S15	W68	279	1300	3.5
81	07	7	17713	S15	W75	273	800	3.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
22365	S15	E75	281	X	3	P	570	7	EKI
22365	S15	E65	279	(AP)	4	H	750	17	FKI
22365	S15	E50	281	(B)	5	H	1410	35	FKI
22365	S15	E39	278	(B)	5	H	1200	43	FKI
22365	S15	E25	279	(B)	5	B	1040	38	FKI
22365	S16	E14	276	(BY)	5	H	1100	73	FKI
22365	S15	W02	279	(D)	5	H	1050	54	FKI
22365	S16	W15	280	(BY)	5	H	930	53	FKI
22365	S16	W29	280	(D)	5	H	970	54	FKI
22375	S10	W45	282	(BP)	3	H	640	23	EKI
22365	S16	W41	278	(BY)	5	H	640	23	EKI
22375	S11	W55	279	(B)	3	B	20	3	BXO
22365	S16	W53	277	(B)	5	H	30	8	BXO
22365	S16	W66	277	(B)	4	B	20	3	BXO
22365	S16	W71	269	(AF)	3	H	80	1	HSX

HALE REGION 17724 CMP DATE 1.5

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
81	07	1	17724	S24	W03	280	200	3.0
81	07	2	17724	S24	W16	280	200	3.0
81	07	3	17724	S23	W32	282	100	3.0
81	07	4	17724	S23	W45	282	100	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S23	W02				H	10	3	BXO
	S29	W08				H	210	14	DKO
	S23	W28				H		1	AXX
	S18	W35				H	110	9	CAO

HALE REGION 17714 CMP DATE 2.1

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
81	06	25	17714	S26	E78	277	300	3.0
81	06	26	17714	S25	E62	280	300	3.0
81	06	27	17714	S25	E53	277	300	2.5
81	06	28	17714	S24	E39	277	200	3.0
81	06	29	17714	S25	E30	274	200	3.0
81	06	30	17714	S26	E15	274	100	3.0
81	07	1	17714	S26	E05	272	200	3.0
81	07	2	17714	S26	W06	270	100	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S29	W08				H	210	14	DKO

HALE REGION 17720 CMP DATE 2.6

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
81	06	30	17720	S17	E25	264	300	3.0
81	07	1	17720	S16	E12	265	400	3.0
81	07	2	17720	S16	W01	265	400	3.0
81	07	3	17720	S16	W15	265	300	3.5
81	07	4	17720	S16	W26	263	400	3.0
81	07	5	17720	S16	W40	263	400	3.5
81	07	6	17720	S16	W50	261	400	3.5
81	07	7	17720	S16	W62	260	400	3.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
22371	S16	E27	263	(B)	3	H	60	4	DAO
22371	S16	E14	263	(B)	4	H	40	8	DSO
22371	S17	E01	264	(B)	4	L	50	17	CSO
22371	S17	W14	265	(B)	4	H	50	8	DSO
	S18	W35				H	110	9	CAO
22378	S17	W34	258	(B)	3	H	80	8	CSO
	S17	W47				B	10	3	BXO
	S17	W71				H	80	1	HSX

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17715 CMP DATE 2.9

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	06	26	17715						22366	N19	E79	265	AP	2	H	140	2	CHO
81	06	27	17715	N17	E68	262	400	2.5	22366	N19	E64	267	(AP)	4	H	150	5	CSO
81	06	28	17715	N18	E53	263	600	3.0	22366	N19	E50	267	(BP)	4	H	130	4	CAO
81	06	29	17715	N18	E38	266	700	2.5	22366	N19	E36	268	(BP)	5	B	30	2	HSX
81	06	30	17715	N17	E26	263	700	3.0	22366	N19	E23	267	(AP)	4	H	130	1	HSX
81	07	1	17715	N17	E15	262	700	3.0	22366	N18	E10	267	(AP)	3	H	120	2	HSX
81	07	2	17715	N17	E03	261	600	3.0	22366	N18	W03	268	(AP)	4	P	100	2	CAO
81	07	3	17715	N18	W13	263	700	3.0	22366	N18	W17	268	(AP)	4	H	50	2	HSX
81	07	4	17715	N18	W25	262	400	3.0	22366	N19	W30	267	(AP)	4	H	90	1	HSX
81	07	5	17715	N19	W37	260	400	3.0	22366	N19	W42	266	(BP)	4	H	80	4	CAO
81	07	6	17715	N20	W50	261	600	3.0	22366	N19	W57	268	(AP)	4	B	40	2	CSO
81	07	7	17715	N22	W64	262	400	3.0	22366	N20	W66	264	(B)	3	H	10	2	CRO
81	07	8	17715	N21	W76	260	200	3.0										

HALE REGION 17721 CMP DATE 3.1

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	06	30	17721	S05	E35	254	100	3.0	22370	S04	E32	258	(B)	3	H	20	5	CRO
81	07	1	17721	S05	E17	260	300	3.0		S04	E17				H	10	4	BXO
81	07	2	17721	S04	E05	259	200	3.0		S04	E04				H	10	2	AXX
81	07	3	17721	S04	W08	258	200	3.0		S06	W03				R	10	2	BXO
81	07	4	17721	S05	W22	259	200	3.0										
81	07	5	17721	S05	W35	258	200	3.0										
81	07	6	17721	S05	W47	258	200	2.5		S04	W46				B		1	AXX
81	07	7	17721	S03	W64	262	300	4.0	22379	S04	W64	262	(B)	3	H	10	3	CRO
81	07	8	17721	S05	W77	261	300	4.0	22379	S04	W77	262	(BP)	4	H	210	5	EHO

HALE REGION 17716 CMP DATE 3.9 RETURN OF LEADING HALF OF REGION 17680 ROTATION 4

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	06	28	17716	N09	E65	251	300	2.0										
81	06	29	17716	N09	E54	250	300	2.0										
81	06	30	17716	N09	E37	252	600	3.0										
81	07	1	17716	N10	E27	250	600	3.0		N08	E24				P	10	2	AXX
81	07	2	17716	N10	E12	252	700	3.0	22374	N10	E14	251	(AP)	3				
81	07	3	17716	N09	E03	247	900	3.0	22374	N09	E04	247	(BP)	4	H	20	4	CSO
81	07	4	17716	N10	W11	248	500	3.0	22374	N09	W10	247	(BP)	3	H	50	8	CAO
81	07	5	17716	N10	W26	249	500	3.0		N08	W22				B	10	3	BXO
81	07	6	17716	N10	W38	249	500	3.0		N08	W38				P	10	3	BXO
81	07	7	17716	N11	W51	249	300	3.0										
81	07	8	17716	N12	W64	248	200	2.5										
81	07	9	17716	N13	W72	243	100	2.0										

HALE REGION 17718 CMP DATE 5.0

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	06	29	17718	N18	E70	234	300	2.0										
81	06	30	17718	N18	E55	234	400	3.0										
81	07	1	17718	N18	E44	233	500	3.0		N13	E35				P	10	3	AXX
81	07	2	17718	N18	E30	234	400	3.0										
81	07	3	17718	N18	E16	234	400	3.0										
81	07	4	17718	N18	E04	233	400	3.0										
81	07	5	17718	N18	W12	235	300	3.0										
81	07	6	17718	N18	W24	235	400	3.0										
81	07	7	17718	N17	W36	234	300	3.0										
81	07	8	17718	N18	W48	232	200	3.0										
81	07	9	17718	N19	W63	234	100	2.5										
81	07	10	17718	N20	W75	233	100	1.5										

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17722 CMP DATE 5.4 RETURN OF TRAILING EDGE OF REGION 17680 ROTATION 4

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	06	30	17722	N08	E62	227	400	2.5										
81	07	1	17722	N11	E46	231	400	2.5										
81	07	2	17722	N11	E35	229	400	2.5										
81	07	3	17722	N11	E22	228	300	3.0										
81	07	4	17722	N12	E09	228	300	3.0										
81	07	5	17722	N13	W05	228	100	2.5										
81	07	6	17722	N10	W24	235	300	2.5		N09	W29				M		1	AXX
81	07	7	17722	N10	W34	232	300	3.0										
81	07	8	17722	N09	W46	230	200	2.5										
81	07	9	17722	N12	W58	229	100	2.5										
81	07	10	17722	N12	W68	226	100	2.0										

HALE REGION 17728 CMP DATE 5.5

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	4	17728	S26	E14	223	200	3.0	22376	S26	E13	224	(B)	4	H	10	6	BXO
81	07	5	17728	S26	W03	226	300	3.0	22376	S27	E02	222	(AP)	3	H	20	10	BXO
81	07	6	17728	S26	W13	224	200	3.0	22376	S27	W15	226	(AP)	3	B	20	1	HRX
81	07	7	17728	S26	W25	223	100	3.0										
81	07	8	17728	S26	W38	222	100	3.0										
81	07	9	17728	S25	W51	222	200	4.0	22386	S27	W52	224	(B)	3	P	10	3	BXO
81	07	10	17728	S25	W64	222	300	3.5	22386	S27	W64	222	(B)	4	H	40	4	DAO
81	07	11	17728	S25	W76	220	100	3.0	22386	S26	W75	221	(AP)	2	H		1	AXX

HALE REGION 17727 CMP DATE 6.4

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	4	17727	S04	E24	213	200	3.0		S04	E23				H	20	6	BXO
81	07	5	17727	S04	E07	216	100	3.0		S08	E10				H	10	6	BXO
81	07	6	17727	S04	W04	215	200	3.0		S03	W04				B	10	3	BXO
81	07	7	17727	S03	W16	214	200	3.0										
81	07	8	17727	S04	W34	218	100	3.0										
81	07	9	17727	S03	W44	215	100	2.0										

HALE REGION 17726 CMP DATE 8.0

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	3	17726	S08	E58	192	100	2.5										
81	07	4	17726	S08	E46	191	200	3.0		S08	E50				L	10	3	AXX
81	07	5	17726	S08	E30	193	100	2.5		S08	E28				B		1	AXX
81	07	6	17726	S08	E16	195	100	3.0	22377	S07	E17	194	(B)	3	B	50	4	CRO
81	07	7	17726	S08	E04	194	300	3.0	22377	S08	E04	194	(B)	3	H	20	3	BXO
81	07	8	17726	S08	W10	194	300	3.0	22377	S07	W10	195	(AP)	2	H		1	AXX
81	07	9	17726	S08	W22	193	200	3.5		S07	W24				B		1	HSX
81	07	10	17726	S08	W36	194	200	3.0										
81	07	11	17726	S09	W49	193	200	3.0										
81	07	12	17726	S09	W76	206	100	2.5										

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17734 CMP DATE 9.6

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	8	17734	S07	E13	171	100	2,5										
81	07	9	17734	S07	W01	172	100	3.0										
81	07	10	17734	S07	W15	173	300	3.0	22389	S07	W15	173	(B)	4	H	40	7	CAO
81	07	11	17734	S07	W29	173	300	3.5	22389	S07	W28	174	(B)	4	H	50	8	CSO
81	07	12	17734	S07	W44	174	200	3.0	22389	S07	W44	176	(B)	4	H	10	1	HRX
81	07	13	17734	S06	W60	178	200	3.0	22389	S07	W58	177	(B)	2	H	10	1	AXX
81	07	14	17734	S06	W71	176	100	2.5	22389	S06	W72	178	(AP)	2	H		1	AXX

HALE REGION 17725 CMP DATE 9.8 RETURN OF NORTHERN HALF OF REGION 17685 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	3	17725	N14	E77	173	400	2.5										
81	07	4	17725	N14	E67	170	800	2.5										
81	07	5	17725	N17	E54	169	700	2.5										
81	07	6	17725	N17	E41	170	600	3.0										
81	07	7	17725	N21	E31	167	800	3.0										
81	07	8	17725	N21	E17	167	1100	3.0										
81	07	9	17725	N20	E02	169	900	3.0	22387	N18	W03	175	(AP)	3				
81	07	10	17725	N19	W11	169	900	3.0										
81	07	11	17725	N19	W27	171	1000	3.0	22395	N22	W27	173	(AP)	4	H	10	1	AXX
81	07	12	17725	N19	W35	165	800	3.0	22395	N21	W41	173	(BP)	3	H	70	8	DRO
81	07	13	17725	N20	W54	172	900	3.0	22395	N22	W56	175	(D)	3	H	170	6	DAO
81	07	14	17725	N21	W60	165	500	3.5	22395	N23	W69	175	(B)	3	H	30	4	CSO
81	07	15	17725	N20	W71	162	300	2.0	22395	N23	W80	171	AP	2	H		1	AXX

HALE REGION 17729 CMP DATE 10.3 RETURN OF SOUTHEAST EDGE OF 17685 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	5	17729	N13	E54	169	300	2.5										
81	07	6	17729	N09	E40	171	300	2.5										
81	07	7	17729	N08	E28	170	300	3.0										
81	07	8	17729	N08	E15	169	400	3.0										
81	07	9	17729	N12	E08	163	300	3.0										
81	07	10	17729	N11	W13	171	300	3.0	22390	N12	W03	161	(AP)	3	H	10	2	AXX
81	07	11	17729	N10	W25	169	500	3.0	22390	N12	W15	161	(B)	4	H	10	4	BXO
81	07	12	17729	N10	W35	165	500	3.0	22390	N11	W28	160	(B)	4	H	20	4	CRO
81	07	13	17729	N12	W50	168	100	3.0	22390	N12	W43	162	(B)	3	H	10	3	BXO
81	07	14	17729	N13	W57	162	100	3.0										

HALE REGION 17747 CMP DATE 11.3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	15	17747	S03	W59	150	100	3.0	22401	S03	W60	151	X	2	H	10	4	BXO
81	07	16	17747	S03	W74	153	100	3.0										

HALE REGION 17731 CMP DATE 11.4 RETURN OF REGION 17689 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	5	17731	S27	E71	152	300	3.0										
81	07	6	17731	S27	E60	151	500	2.5										
81	07	7	17731	S26	E47	151	500	3.0										
81	07	8	17731	S25	E35	149	300	3.0										
81	07	9	17731	S24	E23	148	500	3.0										
81	07	10	17731	S25	E08	150	500	3.0										
81	07	11	17731	S25	W04	148	600	3.0										

CONT

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17731 (CONT) CMP DATE 11.4 RETURN OF REGION 17689 ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
81	07	12	17731	S26	W20	150	400	2.5
81	07	13	17731	S24	W34	152	300	2.5
81	07	14	17731	S23	W45	150	300	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 17730 CMP DATE 11.6 RETURN OF REGION 17687 ROTATION 4

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
81	07	5	17730	N16	E71	152	200	2.5
81	07	6	17730	N16	E60	151	300	2.5
81	07	7	17730	N17	E53	145	400	2.5
81	07	8	17730	N20	E38	146	400	3.0
81	07	9	17730	N20	E25	146	300	3.0
81	07	10	17730	N20	E12	146	400	3.0
81	07	11	17730	N20	W01	145	400	3.0
81	07	12	17730	N19	W14	144	400	3.0
81	07	13	17730	N22	W22	140	500	3.0
81	07	14	17730	N21	W33	138	200	3.0
81	07	15	17730	N21	W47	138	200	2.5
81	07	16	17730	N21	W58	137	200	2.0
81	07	17	17730	N21	W74	140	100	1.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
22388	N15	E33	139	X	1				
22391	N21	E18	140	(AF)	2	H	10	2	BXO

HALE REGION 17733 CMP DATE 12.9

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
81	07	7	17733	S11	E76	122	300	3.0
81	07	8	17733	S08	E58	126	200	3.0
81	07	9	17733	S10	E44	127	300	3.0
81	07	10	17733	S10	E28	130	300	3.0
81	07	11	17733	S10	E15	129	400	3.5
81	07	12	17733	S11	E02	128	200	3.0
81	07	13	17733	S10	W11	129	300	3.5
81	07	14	17733	S10	W24	129	300	3.0
81	07	15	17733	S09	W38	129	200	2.5
81	07	16	17733	S09	W51	130	200	2.5
81	07	17	17733	S09	W63	129	100	1.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
22383	S09	E73	125	(AP)	2	H	10	3	BXO
22383	S10	E59	126	(B)	3	H	10	3	BXO
22383	S10	E43	129	(B)	4	B	40	3	DSO
22383	S10	E28	130	(B)	4	H	40	3	DAO
22383	S09	E14	132	(BP)	4	H	10	1	AXX
22383	S10	W01	133	(AP)	3	H	10	1	HRX
22398	S12	W09	128	AP	1	L		3	BXO

HALE REGION 17739 CMP DATE 13.1

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
81	07	10	17739	S27	E33	125	300	3.0
81	07	11	17739	S27	E18	126	200	3.0
81	07	12	17739	S28	E04	126	200	3.0
81	07	13	17739	S27	W06	124	200	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS

HALE REGION 17741 CMP DATE 13.1

CALCIUM PLAGE DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT
81	07	12	17741	N21	E04	126	200	2.5
81	07	13	17741	N24	W12	130	200	3.0
81	07	14	17741	N24	W21	126	300	3.0
81	07	15	17741	N24	W34	125	200	2.5
81	07	16	17741	N23	W49	128	100	2.5
81	07	17	17741	N25	W62	128	200	2.0
81	07	18	17741	N27	W72	123	100	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N20	W57				H		1	AXX
	N22	W68				B		1	AXX

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17732 CMP DATE 14.0

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	7	17732	N19	E79	119	200	2.5	22382	N21	E78	120	(AP)	4	H	70	1	HSX
81	07	8	17732	N23	E66	118	400	2.5	22382	N21	E64	121	(AP)	4	H	70	3	HAX
81	07	9	17732	N22	E57	114	400	3.0	22382	N20	E51	121	(AP)	4	B	90	2	CSO
81	07	10	17732	N22	E42	116	700	3.5	22382	N21	E38	120	(BF)	4	H	70	11	DAI
81	07	11	17732	N22	E28	116	1400	4.0	22382	N20	E25	121	(BF)	4	H	50	14	CSO
81	07	11	17732	N22	E28	116	1400	4.0	22393	N23	E36	110	(BY)	4	H	90	10	DAO
81	07	12	17732	N21	E15	115	1400	4.0	22393	N22	E22	110	(D)	5	H	150	15	DAO
81	07	12	17732	N21	E15	115	1400	4.0	22382	N20	E13	119	(AP)	4	H	50	7	CAO
81	07	13	17732	N22	E04	114	1600	4.0	22382	N20	W00	119	(AP)	3	H	30	6	CRO
81	07	13	17732	N22	E04	114	1600	4.0	22393	N21	E09	110	(BY)	4	H	180	23	DKI
81	07	14	17732	N22	W06	111	2000	4.0	22393	N21	W03	109	(BY)	4	H	290	26	DKI
81	07	14	17732	N22	W06	111	2000	4.0	22382	N20	W13	119	(AP)	4	H	30	2	HAX
81	07	15	17732	N22	W22	113	1800	4.0	22393	N21	W17	108	BY	4	H	190	21	DAI
81	07	15	17732	N22	W22	113	1800	4.0	22382	N20	W29	120	AP	3	H	60	7	DAO
81	07	16	17732	N23	W31	110	1700	3.5	22382	N20	W40	119	(AP)	3	L	20	5	CRO
81	07	16	17732	N23	W31	110	1700	3.5	22393	N23	W29	108	(B)	3	L	120	15	DAI
81	07	17	17732	N24	W45	111	1200	3.5	22382	N20	W54	120	(AP)	3	H		1	AXX
81	07	17	17732	N24	W45	111	1200	3.5	22393	N23	W42	108	(B)	4	H	80	10	DSO
81	07	18	17732	N24	W56	107	1100	3.5	22393	N23	W55	107	(B)	4	H	140	6	CAO
81	07	18	17732	N24	W56	107	1100	3.5	22382	N20	W67	119	(AP)	3	H		1	AXX
81	07	19	17732	N24	W69	106	700	3.0	22393	N23	W72	111	(B)	4	B	20	2	BXO

HALE REGION 17735 CMP DATE 14.3

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	8	17735	N11	E72	112	300	2.5										
81	07	9	17735	N08	E64	107	400	3.0										
81	07	10	17735	N12	E53	105	900	3.5	22392	N12	E52	106	(B)	4	H	20	2	BXO
81	07	11	17735	N11	E34	110	1100	3.5	22392	N14	E40	106	(B)	4	H	30	4	CAO
81	07	12	17735	N09	E19	111	1300	3.5	22392	N13	E26	106	(B)	3	H	20	4	CRO
81	07	12	17735	N09	E19	111	1300	3.5	22396	N08	E15	117	(AP)	2	B	20	4	BXO
81	07	13	17735	N10	E08	110	1100	3.5	22392	N11	E10	109	(AP)	3	R	150	43	EAO
81	07	13	17735	N10	E08	110	1100	3.5	22396	N05	E03	116	(AP)	3	R	150	43	EAO
81	07	14	17735	N11	W05	110	900	3.5										
81	07	15	17735	N11	W20	111	700	3.0										
81	07	16	17735	N12	W32	111	600	3.0										
81	07	17	17735	N13	W42	108	600	3.0										
81	07	18	17735	N14	W55	106	500	2.5										
81	07	19	17735	N14	W68	105	300	2.0										

HALE REGION 17736 CMP DATE 14.6 RETURN OF REGIONS 17692 AND 17693 ROTATION 3

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	8	17736	S23	E75	109	500	3.0	22384	S26	E80	105	(AF)	2	H	270	7	CSO
81	07	9	17736	S25	E64	107	900	4.0	22384	S27	E70	102	(BF)	4	B	40	7	DAI
81	07	10	17736	S27	E52	106	1500	4.0	22384	S27	E56	102	(BF)	4	H	250	11	DKO
81	07	11	17736	S27	E36	108	2700	4.0	22384	S27	E44	102	(D)	5	H	450	16	DKC
81	07	12	17736	S27	E34	96	2600	4.0	22384	S28	E30	102	(D)	5	H	660	35	DKC
81	07	13	17736	S26	E16	102	2400	4.0	22384	S28	E17	102	(D)	5	H	580	23	DKC
81	07	14	17736	S25	W01	106	1750	4.0	22384	S28	E05	101	(D)	5	H	660	24	DKC
81	07	15	17736	S24	W12	103	2600	3.5	22384	S28	W10	101	D	5	H	550	26	DKC
81	07	16	17736	S25	W25	104	2600	4.5	22384	S27	W21	100	(D)	5	L	450	12	DKC
81	07	17	17736	S25	W34	100	1700	3.0	22384	S27	W34	100	(D)	5	P	500	17	DKI
81	07	18	17736	S25	W48	99	1400	3.5	22384	S27	W48	100	(D)	5	H	280	9	DKO
81	07	19	17736	S25	W60	97	1000	3.0	22384	S27	W60	99	(AP)	4	B	460	4	DKO
81	07	20	17736	S25	W70	93	500	3.0	22384	S27	W72	98	AP	3	H	170	3	CAO

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17737 CMP DATE 15.0

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	8	17737						22385	S09 E80	105	(AP)	2	H	70	6	CSO
81	07	9	17737	S08 E72	99	900	4.0		22385	S09 E73	99	(B)	4	B	180	13	EAI
81	07	10	17737	S08 E56	102	1500	3.5		22385	S09 E59	99	(B)	4	H	470	18	EKI
81	07	11	17737	S08 E45	99	3100	3.5		22385	S09 E46	100	(BY)	4	H	450	28	EKI
81	07	12	17737	S09 E29	101	3200	3.5		22385	S09 E32	100	(D)	5	H	300	39	EAI
81	07	13	17737	S09 E18	100	2500	4.0		22385	S08 E18	101	(D)	5	H	290	47	FKI
81	07	14	17737	S08 E04	101	2700	4.0		22385	S08 E03	103	(D)	5	H	230	29	FAI
81	07	15	17737	S08 W12	103	2400	4.0		22385	S09 W13	104	D	4	H	260	36	FAI
81	07	15	17737	S08 W12	103	2400	4.0		22402	S16 W15	106	AP	2				
81	07	16	17737	S07 W24	103	2300	4.0		22385	S07 W27	106	(D)	5	L	370	25	FKO
81	07	16	17737	S07 W24	103	2300	4.0		22402	S17 W26	105	(AP)	3				
81	07	16	17737	S07 W24	103	2300	4.0		22407	S08 W16	95	(BF)	2	L	370	25	FKO
81	07	17	17737	S07 W39	105	2900	3.5		22385	S07 W41	107	(D)	5	H	660	21	EKC
81	07	17	17737	S07 W39	105	2900	3.5		22407	S09 W28	94	(BY)	4	H	70	9	DAO
81	07	18	17737	S07 W53	104	3000	4.0		22385	S07 W66	118	(B)	5	B	700	17	EKI
81	07	18	17737	S07 W53	104	3000	4.0		22407	S09 W43	95	(AP)	4	H	170	12	DAO
81	07	19	17737	S07 W64	101	2200	4.0		22385	S07 W70	109	(BP)	4	B	900	20	EKI
81	07	19	17737	S07 W64	101	2200	4.0		22407	S09 W57	96	(BF)	4	B	30	10	CSI
81	07	20	17737	S07 W72	95	1100	3.5		22407	S07 W70	96	(BP)	4	H	30	5	CAO

HALE REGION 17738 CMP DATE 15.3 RETURN OF REGION 17695 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	9	17738	S16 E70	101	100	3.0			S13 E75				R	110	14	EAO
81	07	10	17738	S21 E61	97	600	3.0										
81	07	11	17738	S21 E46	98	1200	3.0										
81	07	12	17738	S22 E33	97	1000	3.0			S27 E32				H	660	35	DKC
81	07	13	17738	S21 E21	97	1000	3.5										
81	07	14	17738	S21 E07	98	500	3.5										
81	07	15	17738	S20 W07	98	400	3.5										
81	07	16	17738	S20 W18	97	400	3.5										
81	07	17	17738	S19 W37	103	500	3.0										
81	07	18	17738	S18 W51	102	300	3.0										
81	07	19	17738	S17 W58	95	200	2.5										

HALE REGION 17744 CMP DATE 17.2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	14	17744	N08 E35	70	200	2.0			N12 E36				B	20	1	AXX
81	07	15	17744	N07 E19	72	200	3.0		22404	N06 E18	73	X	2	H		1	AXX
81	07	16	17744	N07 E07	72	300	3.5		22404	N07 E07	72	(B)	4	L		1	AXX
81	07	17	17744	N07 W07	73	400	3.0		22404	N06 W07	73	(BP)	4	H	30	7	CSO
81	07	18	17744	N07 W23	74	200	3.0		22404	N06 W22	74	(AP)	4	H	40	7	CRO
81	07	19	17744	N07 W36	73	500	3.5		22404	N06 W36	75	(BP)	4	B	60	12	CSI
81	07	20	17744	N07 W49	72	400	3.0		22404	N05 W48	74	(BP)	4	H	100	6	DAO
81	07	21	17744	N07 W62	71	200	3.0		22404	N05 W65	74	(AP)	4	H	50	9	DAO
81	07	22	17744	N06 W74	74	300	3.0		22404	N04 W76	76	(AP)	4	H	60	1	HAX

HALE REGION 17740 CMP DATE 17.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	11	17740	N16 E88	56	300	3.0		22394	N14 E77	69	(AP)	3	H		1	AXX
81	07	12	17740	N15 E64	66	400	3.0		22394	N14 E63	69	(AP)	4	H	10	1	HRX
81	07	13	17740	N14 E50	68	600	3.0		22394	N13 E49	70	(AP)	3	H	10	1	AXX
81	07	14	17740	N15 E37	68	900	3.0		22394	N14 E36	70	(AP)	2	H		1	AXX
81	07	15	17740	N14 E25	66	500	3.0		22394	N15 E21	70	AP	1				
81	07	16	17740	N13 E11	68	500	3.0										
81	07	17	17740	N15 W03	69	700	3.0		22409	N19 W03	69	(B)	3	H	10	2	BXO
81	07	18	17740	N16 W16	67	500	3.0			N18 W10				L		1	AXX

CONT

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17740 (CONT) CMP DATE 17.5

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	19	17740	N16 W30	67	400	3.0									
81	07	20	17740	N16 W45	68	500	3.0		N16 W37				H		1	AXX
81	07	21	17740	N16 W56	65	200	2.5									
81	07	22	17740	N16 W65	65	300	2.0									

HALE REGION 17752 CMP DATE 18.1

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	18	17752	N05 W09	60	200	3.0	22412	N04 W07	59	(AP)	3	H	20	7	BXO
81	07	19	17752	N05 W23	60	300	3.0	22412	N04 W23	62	(BP)	3	B	60	12	CSI
81	07	20	17752	N05 W37	60	200	2.5		N06 W43				L	130	16	CAI
81	07	21	17752	N05 W51	60	300	3.0		N03 W52				H	10	3	BXO
81	07	22	17752	N05 W62	62	200	2.5									

HALE REGION 17743 CMP DATE 18.8

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	12	17743					22397	S11 E85	47	AP	1	H	130	1	HSX
81	07	13	17743	S13 E69	49	700	3.5	22397	S11 E69	50	(BP)	3	H	150	5	DSO
81	07	14	17743	S09 E54	51	1000	3.5	22397	S11 E56	50	(BP)	4	H	110	9	DSO
81	07	15	17743	S11 E40	51	600	3.5	22397	S11 E41	50	BP	4	H	160	13	DSO
81	07	16	17743	S11 E29	50	1000	3.5	22397	S10 E30	49	(BP)	4	L	70	9	CAO
81	07	17	17743	S08 E15	51	1000	3.5	22397	S10 E18	48	(AP)	4	H	80	17	DSO
81	07	18	17743	S08 E00	51	700	3.0	22397	S10 E03	49	(AP)	4	H	50	6	CSO
81	07	19	17743	S08 W14	51	800	3.5	22397	S10 W12	51	(AP)	4	B	10	1	AXX
81	07	20	17743	S08 W29	52	400	3.0		S10 W23				H		1	AXX
81	07	21	17743	S08 W43	52	400	3.0		S05 W52				B	20	2	BXO
81	07	22	17743	S08 W53	53	300	3.0									
81	07	23	17743	S08 W64	50	300	2.5									

HALE REGION 17742 CMP DATE 19.0 RETURN OF REGION 17701 ROTATION 2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	12	17742	N14 E80	50	300	3.5		N14 E71				L	10	1	AXX
81	07	13	17742	N15 E67	51	1100	3.5	22399	N15 E70	49	(B)	3	H	40	6	DRO
81	07	14	17742	N15 E56	49	1100	3.0	22399	N15 E57	49	(B)	4	H	50	11	DAO
81	07	15	17742	N15 E42	49	1000	3.0	22399	N16 E42	49	BP	4	H	80	10	DAO
81	07	16	17742	N14 E29	50	1300	3.5	22399	N16 E30	49	(BP)	4	L	20	9	DSO
81	07	17	17742	N15 E15	51	1000	3.0	22399	N16 E16	50	(BP)	3	H	10	3	BXO
81	07	18	17742	N15 E03	48	800	3.0	22399	N16 E06	46	AP	2	H	20	6	BXO
81	07	19	17742	N15 W13	50	900	3.5									
81	07	20	17742	N15 W26	49	400	3.0		N14 W21				H	10	3	BXO
81	07	21	17742	N15 W39	48	600	3.0									
81	07	22	17742	N16 W48	48	500	3.0									
81	07	23	17742	N16 W63	49	400	3.0									
81	07	24	17742	N16 W72	45	200	2.5									

HALE REGION 17745 CMP DATE 19.1

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	14	17745	S13 E58	47	400	3.0		S09 E59				H	110	9	DSO
81	07	15	17745	S14 E45	46	500	3.5		S10 E44				H	160	13	DSO
81	07	16	17745	S14 E35	44	600	3.5	22408	S14 E34	45	(B)	4	L	70	9	CAO
81	07	17	17745	S14 E18	48	600	3.0	22408	S14 E20	46	(B)	3	H	80	17	DSO
81	07	18	17745	S14 E05	46	500	3.0		S09 E02				H	50	6	CSO

CONT

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17745 (CONT) CMP DATE 19.1

			CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	19	17745	S14	W07	44	200	3.0		S09	W10				B	10	1	AXX
81	07	20	17745	S14	W23	46	400	3.0		S10	W23				H		1	AXX
81	07	21	17745	S13	W35	44	300	3.0		S11	W33				L		2	BXO
81	07	22	17745	S13	W46	46	300	2.5										
81	07	23	17745	S13	W58	44	200	2.5										

HALE REGION 17746 CMP DATE 20.0

			CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	14	17746	S17	E69	36	1000	3.0	22400	S20	E69	37	(AP)	3	H		1	AXX
81	07	15	17746	S18	E55	36	600	3.0	22400	S19	E54	37	AP	3	H	10	2	AXX
81	07	16	17746	S17	E43	36	300	3.0	22400	S19	E41	38	(AP)	4	L		1	AXX
81	07	17	17746	S17	E28	38	600	3.0	22400	S19	E29	37	(AP)	3	H	20	1	HRX
81	07	18	17746	S17	E15	36	600	3.0	22400	S19	E15	37	(AP)	4	H	10	2	AXX
81	07	19	17746	S17	E02	35	500	3.0		S19	E10				L		1	AXX
81	07	20	17746	S17	W12	35	500	3.0		S19	W04				L	10	2	AXX
81	07	21	17746	S17	W25	34	400	3.0										
81	07	22	17746	S17	W34	34	300	3.0										
81	07	23	17746	S17	W49	35	300	3.0										
81	07	24	17746	S17	W60	33	200	2.5										

HALE REGION 17748 CMP DATE 22.1

			CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	15	17748	N14	E76	15	400	3.0	22405	N15	E73	18	AP	3	H		1	AXX
81	07	16	17748	N15	E68	11	200	3.0	22405	N15	E61	18	(AP)	4	L	10	2	AXX
81	07	17	17748	N15	E46	20	400	3.0	22405	N15	E48	18	(B)	3	H	10	2	AXX
81	07	18	17748	N15	E35	16	400	3.0										
81	07	19	17748	N15	E27	10	1200	4.0	22405	N16	E29	10	(B)	5	B	80	13	CSI
81	07	20	17748	N15	E13	10	1400	3.5	22405	N16	E17	9	(BP)	5	H	500	34	DKI
81	07	21	17748	N16	E02	7	1600	3.5	22405	N15	W01	10	(B)	4				
81	07	22	17748	N16	W10	10	2200	4.0	22405	N15	W09	9	(BP)	5	H	1020	46	DKI
81	07	23	17748	N16	W23	9	2500	4.0	22405	N15	W23	10	(BP)	5	H	850	37	EKI
81	07	24	17748	N16	W39	12	2200	3.5	22405	N15	W35	8	(BY)	5	H	970	42	EKI
81	07	25	17748	N16	W51	10	1900	3.5	22405	N15	W48	8	(BF)	4	H	900	23	EKI
81	07	26	17748	N15	W61	8	1800	3.5	22405	N15	W60	7	(D)	4	H	750	12	EKI
81	07	27	17748	N15	W84	17	600	3.5	22405	N15	W75	9	X	3	H	440	9	DKI

HALE REGION 17750 CMP DATE 22.1

			CALCIUM PLAGE DATA							SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	15	17750						22406	N10	E82	9	AP	3	H	10	1	AXX
81	07	16	17750	N09	E69	10	100	2.0	22406	N10	E70	9	(AP)	3	L	10	2	AXX
81	07	17	17750	N10	E57	9	400	3.0	22406	N10	E58	8	(AP)	5	H	140	1	HSX
81	07	18	17750	N08	E42	9	500	2.5	22406	N10	E44	8	(AP)	5	H	180	2	HSX
81	07	19	17750	N08	E28	9	400	2.5	22406	N10	E31	8	(AP)	4	B	130	2	HHX
81	07	20	17750	N08	E15	8	500	2.5	22406	N10	E18	8	(AP)	4	H	110	6	HAX
81	07	21	17750	N09	E02	7	500	2.5	22406	N10	E01	8	(AP)	4	H	110	7	HAX
81	07	22	17750	N08	W09	9	500	3.0	22406	N10	W08	8	(AP)	4	H	100	3	CSO
81	07	23	17750	N08	W24	10	400	3.0	22406	N10	W21	8	(AP)	4	H	100	4	CSO
81	07	24	17750	N08	W38	11	700	3.0	22406	N10	W35	8	(AP)	4	H	100	3	CSO
81	07	25	17750	N10	W49	8	300	2.5	22406	N10	W48	8	(AP)	4	H	90	2	HAX
81	07	26	17750	N07	W64	11	300	2.5	22406	N10	W60	7	(AP)	4	H	30	1	HRX
81	07	27	17750	N11	W74	7	100	2.0		N10	W78				H	10	1	AXX

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17749 CMP DATE 22.9 RETURN OF REGION 17705 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HI NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	16	17749	N16	E75	4	500	3.0		N15	E68				L	10	2	AXX
81	07	17	17749	N16	E60	6	500	3.0	22410	N16	E60	6	(AP)	3	H	10	2	AXX
81	07	18	17749	N16	E48	3	800	3.0		N11	E46				H	180	2	HSX
81	07	19	17749	N16	E38	359	700	3.5		N15	E31				B	80	13	CSI
81	07	20	17749	N17	E26	357	600	2.5		N17	E17				H	500	34	DKI
81	07	21	17749	N17	E12	357	600	3.0		N17	E04				H	1030	38	DKI
81	07	22	17749	N17	E03	357	500	3.0										
81	07	23	17749	N17	W12	358	800	3.5		N17	W16				L	720	35	DKI
81	07	24	17749	N17	W25	358	500	3.0		N16	W29				L	720	69	EKI
81	07	25	17749	N17	W37	356	400	2.5										
81	07	26	17749	N18	W51	358	500	2.5		N14	W55				L	1000	22	EKC
81	07	27	17749	N18	W62	355	200	2.5		N15	W70				L	370	15	EKI
81	07	28	17749	N19	W77	357	100	2.0		N16	W86				B	50	1	HSX

HALE REGION 17753 CMP DATE 24.0 RETURN OF EXTREME SOUTH OF REGION 17709 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	18	17753	S16	E71	340	300	3.0		S16	E72				B		1	AXX
81	07	19	17753	S14	E59	338	1000	3.0		S10	E60				B	150	6	EKC
81	07	20	17753	S14	E45	338	1000	3.5		S14	E49				H		1	AXX
81	07	21	17753	S14	E29	340	500	3.0		S19	E33				H	20	4	BXO
81	07	22	17753	S14	E18	342	500	3.5		S19	E21				H	620	5	BXO
81	07	23	17753	S14	E04	342	400	3.5		S19	E07				H	30	13	CRO
81	07	24	17753	S14	W09	342	300	3.0	22421	S16	W26	359	(B)	3	H	10	2	BXO
81	07	25	17753	S14	W22	341	200	3.0		S18	W24				B	70	15	DRI
81	07	26	17753	S14	W36	343	200	2.5										

HALE REGION 17757 CMP DATE 24.1

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	20	17757	S18	E44	339	100	2.0		S19	E47				H		1	AXX
81	07	21	17757	S18	E30	339	200	3.0		S19	E33				H	20	4	BXO
81	07	22	17757	S19	E17	343	300	3.5	22416	S19	E20	340	(B)	3	H	620	5	BXO
81	07	23	17757	S19	E05	341	500	3.5	22416	S19	E05	342	(B)	3	H	30	13	CRO
81	07	24	17757	S19	W08	341	700	3.0	22416	S20	W09	342	(B)	3	H	70	11	DSO
81	07	25	17757	S19	W23	342	1300	3.5	22416	S20	W22	342	(BP)	3	H	140	21	DAO
81	07	26	17757	S20	W35	342	1200	3.0	22416	S20	W34	341	(B)	4	H	260	15	DAO
81	07	27	17757	S19	W49	342	1000	3.5	22425	S18	W62	356	(AP)	3	H	30	2	CSO
81	07	27	17757	S19	W49	342	1000	3.5	22416	S19	W48	342	(B)	4	H	260	10	DAO
81	07	28	17757	S18	W61	341	900	3.0	22416	S19	W60	341	(BF)	3	H	100	7	DAO
81	07	29	17757	S18	W74	341	400	3.0	22416	S18	W72	340	BF	3	H	20	1	HRX
81	07	30	17757						22416	S18	W83	338	X	2				

HALE REGION 17751 CMP DATE 24.2 RETURN OF REGION 17709 ROTATION 3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	17	17751	S07	E79	347	300	3.0	22411	S08	E82	344	AP	2	H	130	2	CHO
81	07	18	17751	S08	E70	341	900	3.5	22411	S07	E75	337	(D)	4	H	1260	10	EKC
81	07	19	17751	S07	E59	338	1400	3.0	22411	S07	E59	340	(B)	5	B	150	6	EKC
81	07	20	17751	S07	E45	338	2200	3.5	22411	S07	E47	339	(B)	5	H	2120	25	DKC
81	07	21	17751	S07	E30	339	2000	3.5	22411	S07	E31	338	(D)	5	H	1920	22	DKC
81	07	22	17751	S08	E21	339	2400	3.5	22411	S07	E21	339	(B)	5	H	1660	23	DKC
81	07	23	17751	S08	E07	339	2400	3.5	22411	S07	E07	340	(B)	5	H	1590	40	DKC
81	07	24	17751	S08	W08	341	2000	3.5	22411	S07	W07	340	(D)	5	H	1610	47	DKC
81	07	25	17751	S08	W21	340	2000	3.5	22411	S07	W20	340	(D)	5	H	1470	31	DKC
81	07	26	17751	S08	W32	339	2000	3.0	22411	S07	W32	339	(D)	5	H	1340	23	DKC
81	07	27	17751	S07	W45	338	1800	3.5	22411	S07	W47	341	(D)	5	H	1290	14	DKC
81	07	28	17751	S05	W61	341	1300	3.0	22411	S07	W60	341	(D)	5	H	1580	12	DKC
81	07	29	17751	S06	W72	339	700	3.0	22411	S07	W73	341	(D)	4	H	980	8	DKC
81	07	30	17751						22411	S06	W88	343	X	3	L	10	2	DKC

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17754 CMP DATE 24.5

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	19	17754	N10	E65	332	300	2.5	22413	N10	E61	338	(AP)	3	L		1	AXX
81	07	20	17754	N10	E48	335	500	2.0		N12	E50				H	10	1	AXX
81	07	21	17754	N12	E37	332	300	3.0										
81	07	22	17754	N12	E26	334	300	3.0		N11	E28				R	20	3	BXO
81	07	23	17754	N12	E13	333	300	3.0		N13	E17				P	10	2	AXX
81	07	24	17754	N11	W03	336	300	3.0										
81	07	25	17754	N11	W16	335	300	3.0		N14	W07				H	10	2	BXO
81	07	26	17754	N10	W28	335	200	3.0										
81	07	27	17754	N07	W48	341	100	2.5	22426	N08	W47	341	(B)	3	H	30	4	CRO
81	07	28	17754	N08	W62	342	100	3.0										
81	07	29	17754	N08	W78	345	100	2.0										

HALE REGION 17755 CMP DATE 25.2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	19	17755	S09	E69	328	200	3.0		S10	E60				B	150	6	EKC
81	07	20	17755	S09	E56	327	300	2.0	22414	S07	E58	328	(B)	3	H	10	4	CSO
81	07	21	17755	S08	E41	328	600	3.0		S07	E35				H	1920	22	DKC
81	07	22	17755	S08	E32	328	400	3.0		S07	E30				H	10	2	AXX
81	07	23	17755	S08	E18	328	500	3.0		S07	E14				L	1590	15	DKC
81	07	24	17755	S08	E06	327	400	3.0		S07	E02				L	1910	58	DKC
81	07	25	17755	S08	W08	327	400	3.0		S07	W05				B	10	2	AXX
81	07	26	17755	S09	W21	328	200	2.0		S07	W24				L	1490	35	DKC
81	07	27	17755	S09	W33	326	300	2.5		S07	W38				L	1270	24	DKC
81	07	28	17755	S07	W47	327	200	2.0		S06	W54				L	1300	14	DKC
81	07	29	17755	S08	W61	328	200	3.0	22428	S11	W59	327	(AF)	3	P	10	1	AXX
81	07	30	17755	S11	W74	327	100	2.5	22428	S11	W71	326	(AP)	3	L		2	AXX

HALE REGION 17761 CMP DATE 25.2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	23	17761	N13	E21	325	200	3.0		N13	E17				P	10	2	AXX
81	07	24	17761	N13	E07	326	300	3.0	22422	N13	E06	327	(BP)	2	H	20	6	BXO
81	07	25	17761	N14	W07	326	200	3.0		N14	W07				H	10	2	BXO
81	07	26	17761	N13	W21	328	100	2.5										
81	07	27	17761	N11	W42	335	200	2.5		N07	W50				H	30	4	CRO
81	07	28	17761	N12	W57	337	200	3.0										
81	07	29	17761	N12	W70	337	100	2.0										

HALE REGION 17756 CMP DATE 25.4

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	19	17756	S18	E72	325	100	3.0										
81	07	20	17756	S18	E61	322	100	2.0		S19	E53				L		1	AXX
81	07	21	17756	S18	E46	323	300	3.5										
81	07	22	17756	S18	E35	325	300	3.0	22417	S19	E36	324	(B)	3	H	30	6	BXO
81	07	23	17756	S18	E24	322	600	3.5	22417	S19	E23	324	(B)	3	H	20	9	BXO
81	07	24	17756	S18	E09	324	700	3.0	22417	S19	E10	323	(B)	4	H	70	16	DRO
81	07	25	17756	S18	W04	323	600	3.0	22417	S19	W03	323	(B)	3	H	200	17	DAO
81	07	26	17756	S19	W16	323	700	3.0	22417	S19	W15	322	(B)	3	H	90	10	DAO
81	07	27	17756	S19	W30	323	700	3.5	22417	S19	W28	322	(BF)	3	H	50	5	CAO

CONT

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17756 (CONT) CMP DATE 25.4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	28	17756	S17 W46	326	700	3.0	22417	S19 W41	322	(B)	3	H	10	1	AXX
81	07	29	17756	S17 W56	323	500	3.0	22417	S19 W50	318	(AF)	3	H		1	AXX
81	07	30	17756	S18 W71	324	300	2.5		S19 W72				L		2	CAI
81	07	31	17756	S17 W79	320	200	2.0									

HALE REGION 17766 CMP DATE 26.9

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	25	17766	N09 E14	305	100	3.0	22423	N09 E16	304	(B)	2	H	10	2	BXO
81	07	26	17766	N08 E03	304	100	2.5		N09 E03				H	10	4	BXO
81	07	27	17766	N09 W11	304	100	2.5									
81	07	28	17766	N11 W26	306	100	3.0									

HALE REGION 17759 CMP DATE 27.3 RETURN OF REGION 17717 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	21	17759	S07 E75	294	900	3.0		S10 E80				H	680	6	FKI
81	07	22	17759	S07 E62	298	300	3.0		S12 E69				B	1500	35	FKI
81	07	23	17759	S05 E46	300	300	3.0									
81	07	24	17759	S05 E29	304	300	3.0									
81	07	25	17759	S05 E15	304	300	3.0									
81	07	26	17759	S04 E07	300	200	2.5									
81	07	27	17759	S04 W06	299	300	3.0		S08 W10				L	10	3	BXO
81	07	28	17759	S03 W22	302	400	3.0									
81	07	29	17759	S03 W33	300	100	3.0									
81	07	30	17759	S04 W48	301	300	3.0	22438	S05 W61	316	(B)	3	B	20	2	BXO
81	07	31	17759	S04 W74	315	300	3.0	22438	S06 W75	316	B	1	H	10	2	BXO

HALE REGION 17758 CMP DATE 27.4 RETURN OF REAR OF 17710 AND 17719 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	21	17758	N23 E74	295	600	3.0									
81	07	22	17758	N23 E59	301	1000	3.0									
81	07	23	17758	N23 E48	298	800	3.0									
81	07	24	17758	N21 E34	299	1000	3.0									
81	07	25	17758	N22 E20	299	1100	3.0		N24 E25				H	10	2	BXO
81	07	26	17758	N22 E09	298	800	3.0		N24 E10				H	20	13	BXO
81	07	27	17758	N22 W04	297	1000	3.0		N24 W09				H	10	4	BXO
81	07	28	17758	N23 W17	297	1100	3.0		N25 W22				H	10	1	AXX
81	07	29	17758	N23 W31	298	1200	3.0	22430	N25 W23	291	(AF)	3	M		1	AXX
81	07	29	17758	N23 W31	298	1200	3.0	22429	N25 W35	303	(AP)	3	H	10	2	AXX
81	07	30	17758	N24 W43	296	1100	3.0									
81	07	31	17758	N24 W54	295	600	3.0									
81	08	1	17758	N25 W68	295	600	3.0	22440	N18 W70	298	(AP)	2				
81	08	2	17758	N26 W77	300	300	3.0									

HALE REGION 17762 CMP DATE 28.1

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	23	17762	N19 E62	284	200	3.0		N20 E62				H	20	2	BXO
81	07	24	17762	N21 E44	289	200	3.0		N20 E47				H		1	AXX
81	07	25	17762	N21 E32	287	100	2.0		N24 E25				H	10	2	BXO

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17760 CMP DATE 28.3 RETURN OF REGION 17713 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	21	17760	S14	E78	291	1200	3.5	22415	S10	E75	294	(AP)	4	H	680	6	FKI
81	07	22	17760	S14	E69	291	1800	3.5	22415	S12	E70	290	(BY)	4	H	2590	15	FKI
81	07	23	17760	S13	E55	291	4200	3.5	22415	S12	E61	286	(B)	5	H	2750	41	FKI
81	07	24	17760	S13	E45	288	5700	3.5	22415	S12	E45	288	(B)	4	H	2110	49	FKI
81	07	25	17760	S13	E28	291	6200	3.5	22415	S12	E32	288	(B)	5	H	2170	81	FKI
81	07	26	17760	S13	E17	290	6200	3.5	22415	S12	E20	287	(B)	5	H	2140	73	FKI
81	07	27	17760	S13	E07	286	6000	4.5	22415	S12	E05	289	(B)	5	H	2040	88	FKI
81	07	28	17760	S12	W09	289	6300	3.5	22415	S12	W08	289	(B)	5	H	1920	85	FKI
81	07	29	17760	S12	W22	289	6500	3.5	22415	S12	W19	287	(D)	5	H	1270	75	FKI
81	07	30	17760	S12	W31	284	5700	3.5	22415	S11	W33	288	(D)	5	B	990	63	FHC
81	07	31	17760	S12	W47	288	5500	3.5	22415	S11	W47	288	(BY)	5	H	1310	44	FKI
81	08	1	17760	S10	W61	288	4500	3.5	22415	S10	W64	292	(D)	5	H	1470	16	FKI
81	08	2	17760	S11	W75	298	3100	3.5	22415	S12	W70	285	(D)	5	H	1030	12	FKO
81	08	3	17760	S10	W79	280	500	3.0	22415	S12	W79	281	(AF)	3	H	440	3	DAO

HALE REGION 17765 CMP DATE 28.8

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	22	17765						22418	S18	E78	282	(AP)	4	H	2590	15	FKI
81	07	23	17765	S22	E65	281	500	3.0	22418	S21	E59	288	(AP)	4	H	140	1	HSX
81	07	24	17765	S23	E51	282	500	3.0	22418	S19	E48	285	(AP)	4	H	140	1	HSX
81	07	25	17765	S23	E36	283	600	3.0	22418	S19	E35	285	(AP)	4	H	140	1	HSX
81	07	26	17765	S24	E25	282	300	3.0	22418	S19	E23	284	(AP)	4	H	110	1	HSX
81	07	27	17765	S24	E14	279	400	3.0	22418	S19	E08	286	(AP)	5	H	130	1	HSX
81	07	28	17765	S25	E01	279	200	2.5	22418	S19	W05	286	(AP)	5	H	110	1	HSX
81	07	29	17765	S25	W15	282	300	3.0	22418	S19	W16	284	(AP)	5	H	130	2	HSX
81	07	30	17765	S26	W26	279	200	2.5	22418	S19	W27	282	(BP)	5	B	50	1	HSX
81	07	31	17765	S24	W38	279	300	2.5	22418	S19	W43	284	(AP)	4	H	170	1	HSX
81	08	1	17765						22418	S19	W56	284	(AP)	4	H	60	1	HAX
81	08	2	17765						22418	S19	W69	284	(AP)	4	H	140	1	HAX
81	08	3	17765						22418	S19	W85	287	AP	2	R	60	1	HSX

HALE REGION 17763 CMP DATE 29.0

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	23	17763	N12	E73	273	200	2.5	22419	N12	E71	276	(AP)	3	H	20	2	BXO
81	07	24	17763	N12	E61	272	400	2.5	22419	N12	E59	274	(B)	3	H	20	3	BXO
81	07	25	17763	N12	E56	263	200	2.0	22419	N12	E46	274	(B)	3	P	20	4	CSO
81	07	26	17763	N12	E34	273	100	3.0	22419	N12	E34	273	(B)	3	H	20	5	CRO
81	07	27	17763	N12	E18	275	500	3.0	22419	N12	E20	274	(B)	3	H	50	10	CRO
81	07	28	17763	N13	E04	276	900	3.0	22419	N12	E07	274	(B)	3	H	160	14	DAO
81	07	29	17763	N13	W09	276	900	3.0	22431	N21	W15	283	(AP)	3	M		1	AXX
81	07	29	17763	N13	W09	276	900	3.0	22419	N13	W07	275	(B)	4	H	80	16	CAO
81	07	30	17763	N13	W24	277	1000	3.0	22419	N12	W21	276	(BY)	5	B	120	17	DAI
81	07	31	17763	N13	W36	277	1300	3.0	22419	N12	W35	276	(B)	4	H	160	12	EAO
81	08	1	17763	N13	W51	278	1300	3.0	22419	N12	W50	278	(B)	4	H	130	6	CAO
81	08	2	17763	N12	W66	289	800	3.0	22419	N12	W63	278	(AP)	4	H	190	2	CAO
81	08	3	17763	N12	W76	277	400	3.0	22419	N09	W80	282	AP	2	H	50	2	CHO

HALE REGION 17764 CMP DATE 29.3

			CALCIUM PLAGE DATA						SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	23	17764	S03	E74	272	300	3.0	22420	S03	E73	274	(AP)	4	H	140	3	CSO
81	07	24	17764	S04	E66	267	600	3.0	22420	S03	E59	274	(AP)	4	H	140	2	HSX
81	07	25	17764	S04	E49	270	800	3.0	22420	S03	E46	274	(AP)	4	H	190	6	CSO
81	07	26	17764	S04	E37	270	800	3.0	22420	S03	E34	273	(AP)	4	P	140	3	CKO
81	07	27	17764	S04	E22	271	900	3.0	22420	S03	E20	274	(AP)	4	H	180	2	CSO
81	07	28	17764	S03	E08	272	1000	3.0	22420	S03	E07	274	(AP)	4	H	170	4	CSO
81	07	29	17764	S03	W05	272	900	3.0	22420	S02	W05	273	(BP)	6	H	110	5	CAO
81	07	30	17764	S03	W19	272	1100	3.0	22420	S02	W20	275	(AP)	5	B	80	1	HSX

CONT

REGIONS OF SOLAR ACTIVITY

JULY 1981

HALE REGION 17764 (CONT) CMP DATE 29.3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	31	17764	S03 W31	272	600	3.0	22420	S03 W34	275	(AP)	5	H	190	5	CSO
81	08	1	17764	S03 W47	274	500	3.0	22420	S03 W47	275	(AP)	4	H	90	3	CAO
81	08	2	17764	S04 W62	285	400	3.0	22420	S03 W60	275	(AP)	4	H	170	1	HSX
81	08	3	17764	S03 W72	273	200	2.5	22420	S03 W73	275	(AP)	4	H	70	1	HSX

HALE REGION 17768 CMP DATE 30.4 RETURN OF REGION 17716 ROTATION 5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	26	17768	N11 E51	256	400	2.5		N12 E41				L	20	2	BXO
81	07	27	17768	N10 E32	261	300	2.5		N07 E42				R	140	13	CSO
81	07	28	17768	N12 E22	258	500	3.0		N10 E27				H		1	AXX
81	07	29	17768	N12 E08	259	400	3.0	22432	N12 E05	263	(AP)	3	P		1	AXX
81	07	29	17768	N12 E08	259	400	3.0	22433	N10 E13	255	(AP)	3	P	10	3	AXX
81	07	30	17768	N12 W04	257	400	2.5		N13 W13				L	110	39	DAO
81	07	31	17768	N12 W16	257	500	3.0									
81	08	1	17768	N13 W30	257	500	3.0	22441	N07 W30	258	(AF)	2				
81	08	2	17768	N12 W47	270	300	3.0									
81	08	3	17768	N12 W55	256	400	2.5									
81	08	4	17768	N12 W68	256	300	2.5									

HALE REGION 17774 CMP DATE 30.4

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	2	17774	N23 W34	257	400	3.5	22442	N23 W32	247	(B)	4	H	50	8	CAO
81	08	3	17774	N23 W48	249	1000	3.0	22442	N22 W45	247	(B)	4	H	250	9	DAO
81	08	4	17774	N22 W59	247	600	3.0	22442	N23 W59	247	(B)	4	B	230	8	DAO
81	08	5	17774	N22 W70	244	300	3.0	22442	N23 W70	246	(B)	4	H	100	6	DAO
81	08	6	17774	N23 W78	239	300	3.0	22442	N23 W80	242	(B)	3	H	60	3	CAO

HALE REGION 17767 CMP DATE 30.9

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	07	25	17767	S07 E68	251	500	3.5	22424	S04 E70	250	B	2	H	20	6	BXO
81	07	26	17767	S07 E56	251	600	3.5	22424	S04 E58	249	(B)	4	H	110	11	DAO
81	07	27	17767	S07 E44	249	600	3.0	22424	S04 E43	251	(B)	4	H	220	15	DAO
81	07	28	17767	S06 E28	252	600	3.0	22424	S04 E30	251	(B)	4	H	140	14	CAO
81	07	29	17767	S06 E16	251	1000	3.5	22424	S05 E16	252	(BP)	4	H	50	7	CAO
81	07	30	17767	S05 E02	251	500	3.0	22424	S05 E03	252	(BP)	4	B	30	5	CSI
81	07	31	17767	S05 W12	253	800	3.0	22424	S05 W11	252	(BP)	4	H	60	8	CAO
81	08	1	17767	S05 W25	252	700	3.0	22424	S05 W24	252	(B)	3	H	10	1	HRX
81	08	2	17767	S05 W37	260	500	3.0	22424	S06 W38	253	(AP)	3	H	10	2	BXO
81	08	3	17767	S05 W54	255	500	3.0	22424	S05 W48	250	(AP)	3	H	10	1	AXX
81	08	4	17767	S05 W61	249	500	3.0	22424	S05 W65	253	(AP)	3	B	20	1	AXX
81	08	5	17767	S04 W74	248	200	2.5		S08 W68				H	110	13	CAO

HALE REGION 17773 CMP DATE 30.9

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
81	08	2	17773	S07 W28	251	100	3.0	22443	S08 W24	239	(B)	3	H	30	5	CSO
81	08	3	17773	S08 W39	240	200	3.0	22443	S09 W37	239	(B)	5	H	80	11	CAO
81	08	4	17773	S08 W52	240	400	3.0	22443	S08 W54	242	(BY)	4	B	70	7	DSO
81	08	5	17773	S08 W66	240	400	3.5	22443	S08 W67	243	(BY)	4	H	110	13	CAO

NOTE: There are Calcium plage spectroheliograms and sunspot observations from Mt Wilson for every day of July.

CONTIGUOUS PLAGES FOR JULY 1981: 17751 - 17753

DAILY CALCIUM PLAGE INDEX

JULY 1981

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
81	7	1	27.8	81	7	11	34.9	81	7	21	25.4
81	7	2	23.8	81	7	12	36.5	81	7	22	31.1
81	7	3	22.6	81	7	13	40.5	81	7	23	41.1
81	7	4	13.0	81	7	14	40.2	81	7	24	42.5
81	7	5	13.8	81	7	15	36.5	81	7	25	46.7
81	7	6	11.4	81	7	16	38.4	81	7	26	42.8
81	7	7	10.2	81	7	17	31.6	81	7	27	47.3
81	7	8	9.6	81	7	18	27.6	81	7	28	40.9
81	7	9	11.4	81	7	19	27.7	81	7	29	39.1
81	7	10	13.3	81	7	20	23.7	81	7	30	32.9
								81	7	31	31.1

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1981

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE							KNOWN FLARE	HALE REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
01	1305	1329	1314	1	1			1					1305	17710
01	2233	2326	2250	1-	1				1				*	
02	0233E	0254	0236	1-	3				2				*	
02	1244	1418	1309	1-	5	2		3	1	1	9		1243	17713
02	1300	1435	1314	1	5	2		4	1	1	10		1258E	17713
02	2245	2254	2251	1-	5	1			1		12		*	
03	0111	0212D	0130	1	3			1	2	1			NF	
03	0118	0326	0221	1-	5	3			1	1	7		0127E	17713
03	0205	0320	0224	2	3				1	1	3		NF	
03	0440	0538	0445	2	3				2		4		*	
03	0604	0717	0618	1	5	2		2	2	1	4		*	
03	0734	0754	0739	1	3	1		1	1	1	1		*	
03	1135	1205	1145	1-	3	3		4		1	1		1126	17726
03	1559	1623	1613	1+	3						8		1557	17726
03	1637	1701	1645	1	3						5		1636	17725
03	1756	1825	1803	1-	5				1		12		1755	17726
03	1904	1956	1913	1-	5	1			2		14		1907	17725
04	0028	0043	0032	1-	3	1				1	1		0023	17725
04	0238	0302D	0249	1-	1				1				*	
04	0302E	0354	0322	1-	3				2				*	
04	0542	0647	0553	1-	3				2	1	3		NF	
04	1255	1345	1305	1-	3	1		1		1	2		1257	17713
05	0818	0850	0827	1-	3	1		1		1			*	
05	1332	1355	1340	1-	3					1	1		1331	17713
05	1531	1600	1537	1-	5	1				1	11		1530	17720
06	0115	0205	0136	1-	3	1			1	1			NF	
06	0747	0851	0757	1-	3				1		1		NF	
06	1917	1940	1922	1-	3						2		NF	
07	0217	0424	0252	2+	5	2			2	1	3		NF	
07	1326	1415	1336	1-	5	2		1		1	6		*	
08	0738	0840	0752	1-	3				1	1	3		NF	
08	1217	1300	1227	1-	3			5	1	1	1		*	
08	2049	2140	2100	1-	5	1			1		14		*	
08	2357	0142	0037	1	3	1			1	1	1		NF	
09	0713	0904	0734	1	5	3		4	2	1			NF	
09	1304	1318D	1318	2	5	3		1	1	1	14		1259	17737
09	1315	1420	1321	1-	5			1		1	9		NF	
09	1739	1815	1745	1	3						8		*	
10	1515	1639	1528	1-	5	4		3	1	1	14		1516	17737
10	1542	1615	1557	2	3						4		1541	17732
11	0209	0249	0214	1-	5	1			2	1	2		0210	17736
11	0502	0616	0509	1	3	1		1	1	1	1		0509E	17736
11	1101	1150	1113	1-	3	1		1		1			1103	17737
11	1202	1325	1217	1	5	2		2	1	1	4		1207E	17732
11	1500	1530	1509	1-	5					1	9		1500	17732
11	1638	1720	1652	1-	5				1		9		1636	17738
11	2342	0022	2350	1-	3	1			1	1	1		*	
12	0031	0114	0041	1-	3	1			1	1			0029	17738
12	0230	0302	0234	1-	1	1							0228	17732
12	0306	0434	0320	1	5	2		1	2	1	4		0309	17738
12	1003	1120	1030	2	3	1				1			1000	17738
12	1207	1300	1216	1-	5	1		2	2	1	7		1208	17736
12	1747	1811	1750	1-	1			1	1				1742	17725
12	2113	2130	2119	1-	1				1				2112	17737
12	2234	2317	2238	1-	5				1		7		2232	17725
13	0546	0647	0554	1	3	1		2	1	2	1		0550E	17725
14	0448	0540	0504	1-	3				1	1			0444	17725

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1981

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
15	0147	0227	0200	1-	3	1			1		1		0147	17737
15	0248	0319	0254	1-	3				2	1	1		0248	17736
15	0354	0535	0404	1	5	2			2	1	4		0354	17737
15	0730	0800	0736	1-	1			1					0730	17737
15	0811	1022	0820	3+	5	4		6	1	2	3		0808E	17737
15	1330	1425	1343	2	5	1		4	1	1	8		1329E	17732
15	1431	1445	1436	1-	1						1		1432	17737
15	1646	1740	1654	1+	5	5		4	1	1	17		1642	17737
15	1957	2006	2000	1	1						1		1955	17737
15	2157	2304	2206	1-	5				1		8		2158	17737
16	0213	0232D	0217	1-	3	1			1				NF	
16	0318	0405	0330	1-	3				1	1	1		NF	
16	0416	0509	0425	1	3	1			2	1	1		NF	
16	0639	0824	0648	2	5	4		3	2	2	3		0640	17737
16	1016	1200	1022	1+	5	3		5		1	1		*	
16	1512	1555	1522	1-	3	1				1	5		NF	
16	1607	1619D	1619	1	5	3		5	1	1	11		NF	
16	1639	1720	1645	1-	5	2		2	1	1	12		*	
16	1934	2020	1946	1-	5	3			2		12		1934	17737
16	2104	2153	2114	1-	3				1		10		2108E	17737
16	2217	2247	2223	1-	3				1		2		*	
16	2321	0008	2331	1-	3				1		9		NF	
17	0137	0330	0155	2	5	2		1	2	1	5		NF	
17	0218	0251	0223	1-	1						1		0216E	17737
17	0501	0530	0506	1-	3				1	1	1		0500	17736
17	0750	1014	0818	3+	5	3		6	2	2	3		0739	17736
17	0816	0836U	0819	1	3	1		2		2			0808E	17751
17	1121	1207	1130	1-	5	2		6	1	1	2		*	
17	1224	1315	1231	1+	5	3		6	1	1	9		1241E	17737
17	1648	1700	1653	1-	5			1			12		NF	
17	1700	1756	1716	1-	5	3		2	1	1	15		1703E	17737
17	2316	2341	2323	1-	1				1				2307	17737
17	2349	0020	2356	1-	3				1	1			2353E	17751
18	0029	0149	0042	1-	5	1		1	1	1	6		NF	
18	0500	0611	0507	1	5				1	1	5		0509	17751
18	0705	0900	0716	3	5	3		5	1	1	4		0703	17751
18	1108	1135	1115	1-	3	1				1	1		1109	17751
18	1143	1300	1155	1-	5	3		3	1	1	6		1146	17751
18	1222	1235	1226	1-	5	1		2		1	7		*	
18	1307	1400	1320	1	5	3		2	1	1	12		*	
18	1552	1655	1603	2+	5	3		2	1	1	15		NF	
18	1638	1706	1646	1-	5				1		12		1638E	17737
18	1738	1803	1743	1-	5	1			1		15		1735	17737
18	1834	1901	1841	1-	3				1		2		1834	17751
18	2018	2052D	2032	1-	5	2			1		14		2023	17751
18	2052E	2223	2102	2+	5				1		13		NF	
18	2250	2334	2302	1-	5				1		6		2252	17737
19	0014	0050	0019	1	3				1	1	1		0015	17737
19	0147	0404	0212	2	3			1	2	1	2		0152	17737
19	0157E	0348	0204	2+	5	3			1	1	6		0153	17755
19	0416	0505D	0431	3+	5	4		1	2	2	4		0409	17755
19	0505E	0930	0534	3+	5	5			1	1	1		0511E	17755
19	0918	0930	0923	1-	1					1			0914	17737
19	1432	1447	1434	1-	3						6		1431	17740
19	1450	1545	1509	1	3						6		1448	17749
19	1730	1755	1739	1-	5	1			1		13		1730	17744
19	1945	2030	2002	1	3						3		1939	17749
19	2106	2156	2120	1-	5	1			1		8		2100	17748
20	0719	0735	0723	1-	1			1					0720	17751
20	0743	0830	0754	2	1						1		0741	17737
20	1310	1530	1332	1	5	3		5	1	1	14		1310	17736
20	1731	1847	1743	1-	5	5		4	1	1	14		1729	17737
20	2159	2218	2200	1	1						1		2159	17751
20	2320	0127	2353	2	3	1			1		1		*	
20	2338	0106	2351	1-	5	1			1		9		*	

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1981

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
21	0224	0510	0403	1	3				2				*	
21	0230	0317	0239	1-	5				1	1	4		*	
21	0356	0522	0406	2+	5	1		1	1	1	4		NF	
21	0734	0830D	0745	1	3			2	1	2			NF	
21	0847	0958	0854	1-	5	4		4	1	2	3		0847	17749
21	1317	1330	1322	1-	3	1		1		1			1315	17755
21	1355	1443	1405	1-	5	2		4	1	1	7		1407	17749
21	1630	1750	1656	1-	5	4			1		9		NF	
21	1814	1845	1818	1	3						2		1813	17748
21	1908	1946	1917	1-	5	1			1		11		1908	17751
21	1959	2058	2010	1-	5	1			1		12		*	
21	2140	2218	2145	1-	5	2			1		13		2134	17760
22	0126	0249	0146	1+	5				1	1	4		*	
22	0416	0556	0424	2+	5	1			2		4		NF	
22	0753	0805D	0805	1	3			3	1	1			0750E	17749
22	0836	0940	0841	1	5	4		4	1	1	3		0845	17759
22	1027	1115	1037	1	5	2		3		1	1		*	
22	1215	1300	1227	1	5	1		1	1	1	3		*	
22	1538	1600	1545	1-	3						9		1535	17748
22	1830	1900	1835	2	3	1					14		1824	17748
22	2018	2020	2040	1-	3						3		2018	17748
22	2117	2142	2124	1-	5	1			1		8		2115	17749
22	2153	2230	2203	1-	5	1			1		9		NF	
23	0056	0130	0105	1-	3				2	1	4		NF	
23	0211	0248D	0220	1	5	1			2	1	6		NF	
23	0435	0612	0452	2	3	1		1	2	1	2		NF	
23	0704	0749	0712	1-	1				1				0704	No data
23	0900	0905	0902	1+	3	1		1	1	1			0900	17749
23	0944	1220	1043	2	3	1				1			0940	17749
23	1014	1100	1023	1-	3	2			1		1		1000	17749
23	1406	1510	1416	1	3						14		NF	
23	1548	1620	1556	1-	5					1	12		NF	
23	2049	2117	2056	1-	5					1	13		*	
23	2316	0030	2326	2	5	2		1	2		10		NF	
24	0304	0350	0313	1-	3				2	1	5		NF	
24	0746	0900	0755	2+	5	4		3	2	2	3		0753E	17760
24	1650	1723	1700	1-	3				1		9		*	
24	1828	1900	1830	1-	3						10		*	
24	1915	1940	1921	1-	3						8		*	
24	2031	2047	2033	1-	3				1		6		*	
24	2305	2346	2318	1-	3				1		1		NF	
24	2346	0046	2355	1-	3				1		5		NF	
25	0156	0220	0202	1-	3	1			2		2		*	
25	0635	0722	0642	1-	3			1	2	1			0635	17748
25	0919	1042	0925	1	5	3		2	1	2			*	
25	1240	1350	1255	2	5	2		3	2	1	8		*	
25	1400	1445	1408	1-	5			1	1		9		NF	
25	1848	1930	1854	1	3						11		NF	
25	2011	2048	2023	1-	3				1		9		NF	
26	0122	0202	0127	1-	3	1			2	1	1		0123	17748
26	0205	0322	0246	1-	3	1			1	1	3		0205E	17760
26	0338	0403D	0340	1-	1				1				0337	17749
26	0334E	0401D	0352	1	1				1				0337	17749
26	0558	0654	0605	2	5	3		2	2	1	4		NF	
26	0725	0759D	0736	1-	3				1	2			0728	17751
26	0803	0833D	0809	1+	5	2		4	1	2	3		0805E	17760
26	0833E	0959D	0914	2+	3	2			1				0839E	17760
26	0959E	1110	1005	2+	5	2		6	1	1			0957E	17769
26	1112	1147	1117	1-	5	1		4	2	1	1		NF	
26	1153	1220	1158	1-	5	1		3	2	1	4		NF	
26	1348	1441	1354	2	5	4		6	2	1	12		NF	
26	1533	1610	1536	1-	5	4		3	1	1	13		NF	
26	1648	1717	1657	1-	5				1		11		*	
26	1811	1850	1822	2	3				1		15		NF	
26	1849	1915	1900	1	3						8		*	
26	1911	2023	1924	1-	5	2			2		12		*	
26	2128	2229D	2133	2+	5	5			1		12		NF	
26	2228E	2320	2238	1-	5				1		5		*	
26	2325	2348D	2335	1-	5	1			1		6		*	
26	2348E	0016D	2353	1	5	1			1		6		2354E	17760

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1981

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	HALE REGION
27	0016E	0054	0020	1-	3				1		1		0014	17748
27	0244	0312	0251	1-	1				1				0245	17760
27	0350	0400	0353	1-	1				1				0345	17760
27	0411E	0509	0416	1	3	1			1				0410	17751
27	0630	0709	0635	1	5	4		4	1	1			0630	17760
27	1134	1251	1142	1	5	4		6	2	1	3		1135	17760
27	1225	1240	1230	1-	3			3	1	1			1229	17764
27	1454	1515	1500	1-	3					1	6		1449	17751
27	1723	1810	1728	2	5	2		4	1	1	8		1724	17760
27	2216	2321	2236	1-	3				1		4		2216	17750
28	0139	0211	0144	1-	3				2		1		0139E	17751
28	0216	0254	0232	1-	3				1		2		0218	17749
28	0254	0340	0304	1-	3	1			1				0258	17760
28	0300	0340	0304	1-	1				1				0300	17763
28	0551	0627	0555	1-	1				1				0553	17760
28	0705	0725D	0713	1-	1				1				0705	17760
28	0724E	0832	0732	2	5	1		2	2	1			NF	
28	0900	0930	0903	1-	3			2	1				0857	17760
28	2008	2124	2016	1+	5	4			2		10		2009	17760
29	0240	0330	0254	1-	3								0242	17751
29	0804	0840	0809	1-	3			1	1				0808E	17760
29	1115	1125	1119	1-	1			1					1107	17760
29	1227	1245	1230	1-	1			1					1225	17760
29	1402	1446	1410	1-	3				1		3		NF	
29	1741	1800	1744	1	1						1		1740	17769
30	0137	0158	0146	1	3						2		0137E	17760
30	0257	0340	0310	1-	3	1			2				*	
30	0935	1040	0946	2	5	3		6	1	1	1		0940E	17760
30	1046	1112	1049	1-	5	1		5	1	1			1047E	17760
30	1242	1320	1248	1-	5	3		6	1	1	2		1242E	17760
30	1617	1700	1635	1-	5	6		1	1	1	12		1616	17760
30	1845	1935	1854	1-	3				1		13		1850E	17760
30	1930	1952	1937	1-	3						3		1931E	17760
30	2041	2133D	2106	1-	5	1			1		7		*	
30	2133E	2220	2138	1-	5				1		8		*	
30	2224	2253	2232	1-	5	1			1		4		2220	17760
30	2326	0050	2349	2	5	4			2		7		2335E	17760
30	2344	0015	2348	1	3						6		NF	
31	0051	0204	0057	1	5	3			1		6		0046	17760
31	0330	0400D	0335	1-	3				1	1			0327	17760
31	0402	0508	0420	1-	3	1		1	1	1			0405	17760
31	0556	0630	0607	1-	5	1		3	1	2	1		NF	
31	0733	0750	0739	1-	3					2			0733	17760
31	1707	1729	1711	1-	5	1		1	1		7		1706	17763
31	1945	2015	1957	1-	3						2		1941	17760
31	2152	2237	2202	1-	1				1				*	

SUDDEN IONOSPHERIC DISTURBANCES

JULY 1981

OBSERVATORIES REPORTING FOR JULY 1981:

Darmstadt, GFR (DA)	SWF	Mayfield Village, Ohio, USA (A28)	SES
Durham, North Carolina, USA (A54)	SES	Maui, Hawaii, USA (MI)	SWF
Eureka, Montana, USA (A55)	SES	Missoula, Montana, USA (A31)	SES
Fort Riley, Kansas, USA (A41)	SES	Panska Ves, Czechoslovakia (PU)	SEA, SWF
Frenchtown, Montana, USA (A56)	SES	Paterson, New Jersey, USA (A46)	SES
Glenorchy, Tasmania, Australia (GN)	SWF	Portage, Michigan, USA (A51)	SES
Hiraiso, Japan (HI)	SPA	Saint Cloud, Michigan, USA (SC)	SES
Hobart, Tasmania, Australia (A43)	SES	Somerton, United Kingdom (SO)	SEA
Houston, Texas, USA (A50)	SES	Sao Paulo, Brasil (UM)	SES, SPA
Huancayo, Peru (HU)	SWF	Sofia, Bulgaria (SF)	SEA
Inubo, Japan (IN)	SPA	Thornwood, New York (A48)	SES
Juliusruh, GDR (JH)	SWF	Trenton, New Jersey, USA (NJ)	SES
Kasugai, Japan (KA)	SPA	Tucson, Arizona, USA (A9)	SES
Kuhlungsborn, GDR (KU)	SEA, LF-SPA	Upice, Czechoslovakia (UI)	SEA
Lake Hiawatha, New Jersey, USA (A32)	SES	Valley Cottage, New York, USA (A1)	SES
Latrobe, Pennsylvania, USA (A19)	SES	Vsetin, Czechoslovakia (VS)	SEA
Lintong, China (LT)	LF-SPA	Yakima, Washington, USA (A37)	SES
Louisville, Kentucky, USA (A26)	SES	Zilina, Czechoslovakia (ZL)	SEA

* No Flare Patrol

Observations are not necessarily continuous for each reporting station.

SIDs BY HALE REGION

JULY 1981

Region	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
17710	1																														
17713		2	1	1	1																										
17720					1																										
17725			2	1								2	1	1																	
17726			3																												
17732										1	2	1			1																
17736											2	1			1		2			1											
17737									1	1	1	1			8	3	4	3	3	2											
17738											1	3																			
17740																			1												
17744																			1												
17748																			1		1	3			1	1	1				
17749																			2		2	2	3			2		1			
17750																											1				
17751																	2	6		2	1					1	2	1	1		
17755																			3		1										
17759																						1									
17760																					1			1		4	5	5	3	9	5
17763																												1			1
17764																												1			
17769																										1	1		1		
NO FLARE			2	1		3	1	2	2							6	2	3			3	2	6	3	3	7		1	1	1	1
NO FLARE PATROL	1	2	3	2	1		1	2	1		1					3	1	2		2	3	3	1	4	3	5				3	1
NO DATA																						1									
EVENT TOTALS	2	4	11	5	3	3	2	4	4	2	7	8	1	1	10	12	11	14	11	7	12	11	11	8	7	21	10	10	6	13	8

PIONEER XII (VENUS ORBITER)
Interplanetary Magnetic Field Magnitudes

MAGNETIC FIELD MAGNITUDES

JULY 1981

DATE	TIME	BMAG
07/01/81	12:58:16	15.20
07/02/81	12:58:18	10.45
07/03/81	12:57:38	12.42
07/04/81	12:57:23	8.64
07/05/81	13:00:17	7.78
07/06/81		----
07/07/81	13:00:22	9.30
07/08/81	13:00:29	11.29
07/09/81	13:00:32	10.36
07/10/81	13:00:08	9.08
07/11/81	12:56:54	14.33
07/12/81	12:59:38	11.21
07/13/81	12:56:58	12.32
07/14/81	12:56:26	14.74
07/15/81	12:56:59	11.92
07/16/81	12:58:08	12.63
07/17/81	12:56:02	14.64
07/18/81	10:23:21	12.56
07/19/81	12:59:55	25.06
07/20/81	12:57:03	19.99
07/21/81	12:59:59	7.64
07/22/81	12:57:42	11.49
07/23/81	12:57:23	12.71
07/24/81	13:01:10	12.20
07/25/81	12:57:31	11.33
07/26/81	13:09:26	11.67
07/27/81	12:57:28	8.82
07/28/81		----
07/29/81	12:58:10	8.82
07/30/81		----
07/31/81	12:58:58	10.26

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	0000	0740	CULG	0000	0420								IN,W
			CULG				0003	0740					IIIN,W
			CULG				0018	0018.5	1				IIIG
			LEAR				0130.3	0130.9	1				CONT
			CULG				0156		1				IIIG
			PALE				0156.0	0156.3	1				III
			LEAR				0156.1	0159.1	1				CONT
			CULG				0313.5		1				I
			CULG	0420	0503		0312	0459					IS,W
	0409	1843	WEIS				0423	1804	1				IN
			CULG	0503	0705	1	0459	0705	1				IS,DC
			CULG				0518.5	0623.5	1				IIIS
			WEIS				0543.8	0544.2	1				IIIG
			WEIS				0545.8	0545.9	1				IIIB
			WEIS				0547.8	0548.0	1				IIIB
			CULG	0558	0559	1	0558	0559	1				IIIG
			WEIS				0558.4	0559.4	2				IIIG
			WEIS				0647.8	0648.0	1				IIIB
			WEIS				0805.5	0806.6	1				IIIG
	1225	2255	HARV										
			WEIS				1257.7	1249.6	2				IIIGG
			WEIS				1707.8	1708.2	3				IIIB
	0500	1820	DWIN	1713.3	1713.5	1							IIIG
			PALE				1717.8	1718.0	1				III
	2105	2400	CULG	2105	2359								IS,W
			CULG				2117	2128	1				IN
			CULG				2118.5	2356					IIIN,W
			CULG				2159.5		1				IIIB,Z
			CULG				2240	2400					IS,W
02	0000	0700	CULG				0001	0651					IIIN,W
			CULG	0009	0656		0023	0551.5					I
			PALE				0112.5	0113.6	1				CONT
			LEAR				0112.5	0114.6	1				CONT
			CULG	0115	0116	1	0111.5	0116	1				IIIGG
			CULG				0225.5		1				IIIB
	0409	0545	WEIS				0430.1	0430.6	1				IIIG
	0500	1815	DWIN										
	0551	1843	WEIS				0610.6	0612.0	2				IIIG
			CULG				0611.5	0612	1				IIIG,U
			WEIS				0823.6	0824.0	2				IIIG
			LEAR				0823.6	0823.8	1				III
			WEIS				0903.5	0903.8	2				IIIG
			WEIS				1146.0	1146.4	2				IIIG
			WEIS				1312.1	1316.6	2				IIIGG
			WEIS				1344.7	1348.2	2				IIIGG
	1215	2300	HARV				1345	1346	2				IIIG
			WEIS				1353.7	1355.6	2				IIIGG
			HARV				1354	1355	3				IIIG
			WEIS				1448.7	1449.2	2				IIIG
			HARV				1449		2				IIIG
			WEIS				1458.5	1459.3	2				IIIG
			HARV				1459		2				IIIG
			WEIS				1522.6	1522.8	2				IIIG
			WEIS				1530.7	1530.8	1				IIIB
			WEIS				1602.5	1606.8	3				IIIGG
			SGMR				1604.1	1605.0	1				V
			HARV				1648	1649	2				IIIG
			WEIS				1648.3	1648.6	2				IIIG
			WEIS				1746.1	1746.2	1				IIIB
			PALE				1942.6	1943.8	2				V
			HARV				1943		3				IIIG
			HARV				1943		3				IIIG
	2210	2400	CULG				2218						IIIB,W
			CULG				2229.5						IIIB,W
			CULG				2314.5		1				IIIB
			CULG				2349.5	2350.5					IIIG,W
03	0000	0731	CULG				0131						IIIB,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
03			CULG				0224.5						IIIB,W
			CULG				0329.5		1				IIIB
			CULG				0357.5	0358	1				IIIB
			LEAR				0357.6	0358.2	1				CONT
	0410	0718	WEIS										
			CULG				0432.5	0433	1	0432.5		1	IIIG
			CULG				0517.5		1				IIIB
			CULG				0614	0614.5	1				IIIG
	0625	1315	DWIN										
			CULG				0633		1				IIIB
	0749	1048	WEIS				1021.4	1021.5	1				IIIB
			WEIS				1028.2	1028.4	2				IIIG
	1216	1918	HARV				1324		2				IIIG
	1057	1842	WEIS				1324.1	1324.4	1				IIIG
			WEIS				1348.4	1348.7	2				IIIG
			HARV				1632		2				IIIG
			WEIS				1635.9	1638.6	2				IIIG
			HARV				1636		1				IIIG
			HARV				1759	1803	2				IIIG
			WEIS				1759.4	1800.3	1				IIIG
	1355	1815	DWIN	1802.5	1803.5	1							IIIG
			PALE				1802.8	1803.5	1				III
			WEIS				1802.9	1803.4	2				IIIG
	2037	2400	CULG				2121.5	2320					IIIN,W
			CULG				2215	2215.5	1				IIIG
04	0000	0735	CULG				0106	0608.5					IIIN,W
			CULG				0207.5	0208	1				IIIG
			LEAR				0258.2	0258.6	1				CONT
	0500	1815	DWIN										
	0411	1625	WEIS				0500.5	0500.7	1				IIIG
			WEIS				0508.5	0508.7	1				IIIB
			CULG				0522	0522.5	1				IIIB
			WEIS				0522.3	0522.4	2				IIIG
			WEIS				0527.3	0527.6	2				IIIG
			CULG				0601	0602	1				IIIG
			WEIS				0601.1	0601.9	2				IIIG
			WEIS				0708.6	0709.3	1				IIIG
			WEIS				0845.2	0845.4	2				IIIG
			WEIS				0848.4	0848.7	1				IIIB
			WEIS				0955.2	0955.4	2				IIIG
			WEIS				1005.1	1005.2	1				IIIB
			WEIS				1040.5	1040.7	1				IIIG
			WEIS				1130.7	1130.9	1				IIIG
			WEIS				1203.9	1204.9	2				IIIG
			WEIS				1207.2	1208.7	2				IIIG
			WEIS				1231.4	1232.2	3				IIIG
	1216	2305	HARV				1232		2				IIIB
			WEIS				1301.1	1301.2	1				IIIB
			HARV				1316	1317	2				IIIG
			WEIS				1316.6	1316.9	2				IIIG
			WEIS				1319.3	1321.3	3				IIIG
			WEIS				1325.8	1325.9	1				IIIB
			WEIS				1330.8	1331.3	1				IIIG
			WEIS				1343.4	1343.7	1				IIIB
			WEIS				1549.2	1549.8	2				IIIG
			HARV				1640		2				IIIB
			PALE				1732.9	1741.5	2				CONT
			HARV				1733	1743	3	1736	1743	3	IIIGG,V
	1647	1842	WEIS				1733.0	1733.3	1				IIIG
			WEIS				1736.2	1742.9	3				IIIG
			WEIS				1820.2	1820.6	2				IIIB
			PALE				1820.4	1820.6	1				III
			HARV				2129		2				IIIGW
	2036	2400	CULG				2129	2129.5	1				IIIG
			CULG				2254	2255.5	2				IIIG,V
			CULG				2316.5	2317.5	1				IIIG,V
			CULG				2319		1				IIIB
			CULG				2334.5						IIIB,W
05			CULG	0000	0702		0012	0119					IN,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
05	0000	0735	CULG				0004	0005	1				IIIG
			CULG	0006.5		1	0006.5		1				IIIB
			CULG				0119	0257	1				IS
			CULG				0144.5	0153	1				IIIS
			LEAR				0144.7	0150.9	1				CONT
			PALE				0144.8	0151.1	1				CONT
			CULG				0147	0148	2				IIIG,V
			CULG				0257	0421					IN,W
	0500	1800	DWIN										
	0412	1842	WEIS				0613.7	0613.8	1				IIIB
			WEIS				0713.8	0714.4	1				IIIG
			WEIS				0734.9	0736.0	3				IIIG
			WEIS				0956.0	0956.6	2				IIIG
			WEIS				0959.6	0959.7	2				IIIB
			WEIS				1339.4	1340.2	2				IIIG
	1233	2311	HARV				1530	1533	3	1531	1532	2	IIIGG
			WEIS				1530.3	1534.0	3				IIIGG
			SGMR				1530.8	1532.5	1				V
			HARV				1630		1				IIIGW
			HARV				1635	1636	2				IIIG
			WEIS				1635.6	1635.9	2				IIIG
			WEIS				1728.5	1728.6	1				IIIB
			WEIS				1811.8	1812.4	3				IIIG
			HARV				1812		2				IIIG
	2040	2400	CULG				2143.5						IIIB,W
			CULG				2146.5	2358.5	1				IIIN
			CULG				2309	2310	1				IIIG,V
06	0000	0736	CULG				0043						IIIB,W
			CULG				0415	0416	1				IIIG,U
			CULG				0429.5	0430	1				IIIG
			CULG				0434	0435	1				IIIG
			LEAR				0434.3	0435.1	1				CONT
	0412	0752	WEIS				0434.4	0434.8	2				IIIG
			WEIS				0436.8	0436.9	1				IIIB
			CULG				0437						IIIB,W
			CULG				0452						IIIB,W
			CULG				0513	0513.5					IIIG,W
			CULG				0518						IIIB,W,U
			CULG				0641						IIIB,W
			WEIS				0741.4	0741.9	1				IIIG
	0620	1800	DWIN	0827.1	0827.2	1						IV	
	0758	1843	WEIS				0828.2	0828.8	1				IIIG
	1233	2300	HARV				1233		1				IIIGW
			HARV				1534		1				IIIG
			WEIS				1534.4	1534.8	2				IIIB
			HARV				2027	2028	2				IIIG
			HARV				2125	2126	1				IIIB
	2037	2400	CULG				2125.5	2348.5					IIIN,W
			CULG				2215	2215.5	1				IIIG
			CULG	2317	2400								IS,W
			CULG				2320.5	2321.5	1				IIIG
			CULG	2332.5	2333		2332.5	2333.5	2				IIIG
			PALE				2332.5	2332.9	2				III
			CULG				2349		1				IIIB
07	0000	0720	CULG	0000	0303.5								IS,W
			CULG	0006	0007.5	1	0006	0007.5	1				IIIG
			CULG	0008.5	0011.5	1	0008.5	0011.5	1				IIIGG
			CULG	0217.5		1	0217.5		1				IIIB
			CULG	0304	0305	2	0304	0304.5	1				IIIG
			CULG	0306.5	0307.5		0307.5						IIIG,W
			CULG	0340.5	0341	1	0340	0341	1				IIIG
			CULG	0342.5	0343	1							DCIM
			CULG	0347			0347						IIIB,W
			CULG	0351.5	0354.5	1	0353	0354.5	1				IIIGG
			CULG				0410.5	0411.5					IIIG,W
	0408	1322	WEIS				0753.9	0756.3	2				IIIG
			WEIS				1212.1	1212.7	1				IIIG
	1327	1843	WEIS				1328.6	1329.9	3				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
07			SGMR				1328.6	1329.1	1				V
			WEIS				1409.2	1409.6	1				IIIG
			WEIS				1432.3	1432.6	1				IIIG
	1450	2340	HARV				1503	1504	1				IIIG,U
			WEIS				1507.8	1508.3	1				IIIG
			HARV				1509	1513	3				IIIGG
			WEIS				1511.0	1513.0	2				IIIGG
			HARV				1607		1				IIIB
	0510	1800	DWIN	1611.1	1611.9	2							IIIG
			DWIN	1612.8	1612.9	1							IIIG
			HARV				1833	1834	2				IIIG
	2036	2400	CULG				2154	2155	1				IIIG
			CULG				2331.5	2400	1				IIIN
			CULG				2348	2352	2				IIIGG
08	0000	0736	CULG				0012	0307.5	1				IIIN
			CULG				0019	0159					IIIN,W
			CULG	0407		1	0407		1				IIIB
	0505	0935	DWIN										
	0608	1203	WEIS										
			CULG				0641.5		1				IIIB,U
	1250	1843	WEIS										
	1234	2245	HARV				1328	1702	1				IN
			PALE				1913.1	1914.0	1				III
	2038	2400	CULG				2125.5	2127	1				IIIG
			CULG				2141	2258					IIIN,W
			CULG				2238.5		1				IIIB
			CULG				2246.5		1				IIIB
			CULG				2327		1				IIIB
09	0000	0736	CULG	0000	0700		0000	0700					IN,W
			CULG	0133		1	0133		1				IIIB
			CULG				0313.5	0336	1				IIIN
			CULG				0615.5	0616					IIIG,W,U
			CULG				0701		1				IIIB
	1233	2300	HARV				1308	1309	2				IIIG
	0623	1843	WEIS				1308.0	1308.6	1				IIIG
			HARV				1311	2300	1				IN
			HARV				1317		1				IIIBW
			HARV				1816	1818	2	1816	1818	2	IIIG
			WEIS				1816.1	1816.3	1				IIIB
			WEIS				1818.1	1818.2	1				IIIB
			HARV				1830		2				IIIG
			PALE				1840.5	1840.7	2				III
	2038	2400	CULG	2104	2400		2120	2400					IS,W
			CULG				2110	2111	1				IIIG,U
			CULG				2152		1				IIIB
			CULG	2201.5	2202	1							DCIM
			CULG	2243	2243.5	1							I
			CULG				2250	2357					IIIS,W
			CULG	2327	2400		2327	2400					IN,W
10			CULG				0000	0534.5					IS,W
	0000	0736	CULG	0000	0317	1							IS
			CULG				0029	0029.5	1				IIIG,U
			CULG				0127	0706					IIIN,W
			CULG	0317	0622								IS,W
	0402	1150	WEIS										
			CULG	0622	0715	1							IS
	1233	2200	HARV				1233	1600	1				IN
	1155	1842	WEIS				1341.0	1341.3	2				IIIG
			HARV				1600	2200	2				I
			HARV				2110		2				IIIG
	2038	2400	CULG				2115	2357					IIIN,W
			CULG	2132	2357		2119.5	2325.5					IN,W
			CULG				2213	2214.5	1				IIIGG
11	0000	0712	CULG				0002	0704					IIIN,W
			CULG	0003	0701								IN,W
			CULG	0038.5		1	0038.5		1				IIIB,U

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
11			CULG	0041	0042	2	0041	0042	1				IIIG
			CULG	0051.5		1	0051.5	0053	2	0051.5	0052	1	IIIGG
			CULG	0153.5	0154	1	0153.5	0154	1				IIIG
			CULG				0210	0711					IN,W
			CULG	0304.5		1	0304.5		1				IIIG
			CULG							0315	0335		SWF,W
			CULG	0324.5	0325	1	0324	0325.5	3	0324.5	0325	2	IIIGG,V
			CULG	0326.5		1	0326.5		1				IIIG,U
			CULG	0327.5	0328.5	1	0327.5	0328.5	2	0328		1	IIIGG,V,U
			CULG	0443.5		1	0443.5		1				IIIB
			CULG	0543	0543.5	1							IIIG
			CULG	0610.5	0611	1							DCIM
			CULG	0635.5	0636	1							DCIM
			CULG	0649.5		1	0649.5		1				IIIB
			CULG				0652.5		1				IIIB,U
	0410	1433	WEIS				0833.5	0833.8	1				IIIG
			WEIS				0927.3	0927.5	1				IIIB
	1234	2245	HARV				1237	1810	1				I
			HARV				1438	1439	1				IIIBW
	1508	1823	WEIS										
			HARV				1734		2				IIIB
			HARV				1810	1900	2				I
			HARV				1900	2245	1				I
	2040	2400	CULG				2105	2400	1				IS
			CULG	2108.5	2109	1	2108.5	2110	1				IIIGG
			CULG				2110.5	2348.5					IIIN,W
			CULG	2115	2116.5	1	2115.5	2116.5	1				IIIGG
			CULG				2121.5		1				IIIB
			CULG	2122.5									DCIM,W
			CULG	2126		1							IIIB
			CULG	2127		1	2127		1				IIIB
			CULG				2137		1				IIIG,U
			HARV				2213	2214	2				IIIG
			CULG				2252	2254.5	1				IIIG
12			LEAR				0324.6	0325.2	2				CONT
			LEAR				0327.7	0328.3	1				CONT
	0754	1842	WEIS				0759.7	0759.9	1				IIIB
			WEIS				0919.7	0919.9	1				IIIB
			WEIS				1003.0	1006.9	3				IIIG
			WEIS				1032.6	1041.2	2			II	HARM
			WEIS				1039	1147	2				CONT
			WEIS				1149	1304	2				IIIS,C,F
			SGMR				1203.0	1215.2	1				CONT
	1233	2250	HARV				1248		2				IIIG
			WEIS				1306.1	1306.9	2				IIIG
			HARV				1308	2203	2				IIIN
			HARV				1313	2143	1				IN
			WEIS				1541.9	1542.2	2				IIIG
			HARV				1542		2				IIIG
			HARV				1623	1626	2				IIIGG
			WEIS				1625.5	1626.4	1				IIIG
			HARV				1642	1644	3				IIIGG,U
			HARV				1822	1823	2				IIIG
			HARV				1932	1938	3				IIIGU
			HARV				2006		2				IIIG
			HARV				2108	2111	3				IIIGG
			HARV				2116		3				IIIG
			HARV				2125	2127	2				IIIG
13	0000	0736	CULG				0000	0711					IS,W
			CULG	0001		1	0001	0001.5	1				IIIB
			CULG				0001.5	0610					IIIN,W
			CULG	0001.5	0002.5	1	0001.5	0002.5	1				IIIG
			CULG				0249.5	0250	1				IIIG,U
			CULG	0411.5	0414	1	0411.5	0413.5	2				IIIGG
			LEAR				0411.9	0413.5	1				CONT
			CULG				0424	0426	1			II	
			CULG				0531.5		1				IIIB,U
			CULG				0532		1				IIIB,U

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
13			CULG	0700.5	0701	1	0700.5	0701	1				IIIG,V
	0411	1306	WEIS				0700.7	0701.3	2				IIIG
			LEAR				0700.8	0701.3	1				V
			WEIS				0728.4	0728.7	2				IIIG
			WEIS				0731.7	0731.9	2				U
			WEIS				0812.1	0813.0	2				IIIG
			WEIS				0921.0	0922.2	2				IIIG
			WEIS				0926.7	0926.4	2				IIIB
	1233	2300	HARV				1241	2300	1				IN
			HARV				1651	2224	2				IIIN
	1332	1834	WEIS				1728.4	1728.6					IIIB,RS
			PALE				1912.8	1916.1	2				V
			HARV				2026		3				IIIG
			HARV				2056		2				IIIG
	2040	2400	CULG				2056.5	2347					IIIN,W
			CULG				2151.5	2400					IN,W
			CULG	2227	2228.5	1							DCIM
			HARV				2227	2228	2				IIIG
			CULG				2228.5	2229	1				IIIB,V
14	0000	0736	CULG				0000	0500					IS,W
			CULG				0028	0659.5					IIIN,W
			CULG	0424.5	0425	1							DCIM
	0424	1833	WEIS				0446	1822	1				IIIN
			CULG				0446.5	0604	1				IIIS,Z
			LEAR				0446.7	0511.6	1				S
			CULG				0500	0714	1				IS,C
			CULG	0517	0517.5	1	0517		1				IIIG
			CULG	0521	0522	1							IIIG
			LEAR				0602.5	0834.0	1				B
			CULG				0604	0655					SCIN
	1233	2245	HARV				1235	2245	1				IN
			HARV				1536		1				IIIB
			HARV				1821	1822	3				IIIG
			PALE				1822.6	1822.9	2				III
			PALE				1834.3	1934.5	1				S
	2040	2400	CULG				2102.5	2400	1				IS
			CULG				2109	2301					IIIS,W
			CULG	2119		1							IIIB
			HARV				2119		2				IIIB
			CULG				2156		1				IIIB
			HARV				2205	2206	3				IIIG
			CULG				2208	2208.5	1				IIIB
			CULG	2211		1	2211		1				IIIB
			HARV				2211	2212	2				IIIG
			CULG				2247.5	2248.5	1				IIIG
			CULG				2306	2341.5	1				IIIS
15	0000	0736	CULG				0000	0446	1				IS
			CULG				0051		1				IIIB
			CULG				0118		1				IIIB
			CULG				0143	0705.5					IIIS,W
			LEAR				0206.6	0353.5	1				B
			CULG				0446	0700					IS,W
	0425	0517	WEIS				0447.4	0447.6	1				IIIB
			CULG	0542	0543.5	1							DCIM
			CULG	0600.5	0601.5	1							DCIM
			CULG				0703		1				IIIB
	0608	0925	WEIS				0703.2	0705.8	1				IIIG
			CULG	0706									IIIB,W
			WEIS				0730.9	0732.8	2				IIIG
			WEIS				0749.4	0751.3	2				IIIG
			HARV				1233	1700	2				IN
	0944	1832	WEIS				1328.2	1335.5	3				IIIGG
			HARV				1329	1335	3				IIIGG
			SGMR				1330.5	1334.6	1				CONT
			WEIS				1528.2	1528.3	1				IIIB
			HARV				1537		3				IIIB
			WEIS				1537.2	1537.3	1				IIIB
			HARV				1700	2246	1				IN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
15	2040	2400	CULG				2112	2351					IN,W
			CULG	2121.5	2122		2121	2122					IIIG,W
			HARV				2122	2123	3				IIIG
			CULG	2122.5	2123	1	2122	2122.5	1				IIIG
			CULG				2123.5	2359.5					IIIS,W
			HARV				2158	2159	2				IIIG
			CULG	2158.5	2159		2159						IIIG,W
16	0000	0735	CULG				0000	0654.5					IIIN,W
			CULG				0009	0555					IN,W
			CULG				0052	0053.5	1				IIIG
			CULG				0056.5	0057	1				IIIG
			CULG				0312	0313.5	1				IIIG
			CULG				0338.5	0341.5	2				IIIGG
			CULG				0428	0430	2	0428	0429.5	1	IIIG,V
			CULG				0432.5	0433.5	2	0432.5	0433.5	1	IIIG,V
			CULG				0434	0443	2				IIIG,N,V
			CULG				0631	0631.5	2				IIIG,V
	0634	1413	WEIS				0806.9	0807.1	2				IIIB
			WEIS				1016.3	1017.9	2				IIIB
			WEIS				1120.3	1120.7	2				IIIG
	1233	2255	HARV				1243	2152	1				IN
			HARV				1331		2				IIIB
	1420	1830	WEIS				1435.9	1436.3	2				IIIG
			HARV				1451	1454	2				IIIG
			WEIS				1459.0	1459.8	1				IIIG
			WEIS				1508.5	1512.8	2				IIIGG
			HARV				1509	1513	2				IIIGG
			HARV				1538	1539	2				IIIG,U
			WEIS				1539.2	1539.5	2				IIIG
			WEIS				1541.3	1541.5	1				IIIB
			WEIS				1544.8	1544.9	1				IIIB
			WEIS				1554.7	1554.8	1				IIIB
			HARV				1558	1603	3				IIIG,V
			WEIS				1558.2	1604.3	3				IIIG/V
			HARV				1633	1637	2				IIIGG
			WEIS				1633.2	1637.7	2				IIIG
			HARV				1709	1716	3	1709	1715	3	IIIGG,V
			WEIS				1709.2	1719.0	3				IIIGG/V
	0920	1850	DWIN	1721.6	1721.7	2							IIIG
			WEIS				1721.7	1722.4	3				IIIG
			HARV				1722	1723	3	1722		3	IIIG,V
			WEIS				1732.7	1737.3	2				IIIGG
			HARV				1733	1737	3				IIIGG
			DWIN	1735.0	1737.0	1							IIIG
			WEIS				1742.7	1744.6	2				IIIG
			HARV				1847	1851	3				IIIGG,V
			DWIN	1848.8	1848.9	2							IIIG
			PALE				1923.4	1926.2	2				V
			PALE				1928.3	1928.5	1				III
			PALE				1931.7	1935.0	3				V
			HARV				1938	1939	3				IIIG
			PALE				1938.1	1940.7	2				V
			PALE				1938.8	1940.8	2				V
			HARV				2024	2025	3				IIIG
			HARV				2032	2034	3				IIIG
			HARV				2040		3				IIIG
	2040	2400	CULG	2104	2152								IN
			CULG				2104	2400	1				IS
			CULG				2124.5	2359					IIIN,W
			CULG				2128.5	2132.5	1				UNCLF
			PALE				2150.0	2150.4	2				III
17	0000	0735	CULG				0000	0430	1				IS
			CULG				0027	0218.5					IIIN,W
			CULG				0033						DP,W
			CULG				0146		1				IIIB,U
			CULG	0150.5	0151.5	1							DCIM
			CULG							0151	0210		SWF
			CULG				0155.5		1				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
17			LEAR				0155.6	0155.8	1				III
			CULG	0159		1							DCIM
			CULG	0217.5	0219	1							DCIM
			CULG				0218		1				IIIB
			LEAR				0218.3	0317.6	1				S
			PALE				0218.4	0305.5	1				S
			CULG				0218.5	0422.5					IIIS,W
			CULG	0233	0233.5	1	0233	0233.5	1				IIIG
			CULG				0235	0235.5	2				IIIG
			PALE				0306.0	0318.4	1				CONT
			CULG	0313		1	0313	0314	2				IIIG,V
			CULG	0315	0316	1							I
			CULG	0319.5	0321	1							I
			LEAR				0325.8	0503.5	1				B
			CULG				0423	0658					IIIN,W
			CULG	0434		1	0434	0434.5	1				IIIG
	0429	0903	WEIS				0434.3	0434.7	2				IIIB
			CULG	0439	0440	1	0439	0439.5	2				IIIG,V
			WEIS				0439.0	0440.2	2				IIIG,RS
			LEAR				0439.2	0439.4	1				CONT
			LEAR				0708.5	0714.3	1				CONT
			WEIS				0708.5	0714.4	2				IIIGG
			WEIS				0815.8	0821.6	2				DCIM,RS
	0500	1800	DWIN	0816	0855	2						IV	
			LEAR				0817.5	0939.0	2				B
			WEIS				0819.9	0826.6	2				IIIG
			WEIS				0837.8	0838.8	2				IIIG
			WEIS				0838.8	0920.3	3			IV	M
			WEIS				0839.0	0846.5	2			IV	DM
			DWIN	0915.7	0916.3	2							IIIG
	0911	1829	WEIS				0955.5	0959.4	3				IIIGG
			WEIS				1051.7	1052.8	2				IIIG
			WEIS				1221.5	1221.7	1				IIIB
			WEIS				1223.0	1223.5	2				IIIG
	1233	2245	HARV				1236	2245	1				IN
			HARV				1258		1				IIIG
			HARV				1632		2				IIIG
			WEIS				1632.2	1632.5	2				IIIB
			PALE				1655.2	1655.4	2				III
			PALE				1723.7	1736.6	2				S
			SGMR				1723.7	1724.1	1				V
			WEIS				1723.8	1725.1	2				IIIG
			HARV				1724		2				IIIG
			WEIS				1726.8	1727.1	1				IIIB
			HARV				1848		2				IIIG
			PALE				1848.1	1855.6	2				CONT
	2040	2400	CULG				2108	2400					IIIS,W
			CULG	2304	2311	1							DCIM,W
			CULG				2351.5	2352	1				IIIG
			PALE				2351.5	2351.7	2				III
18	0000	0735	CULG				0000	0735					IIIS,W
			CULG				0215.5	0216	1	0215.5	0216	1	IIIG
			LEAR				0215.7	0216.1	1				CONT
			CULG				0248	0248.5	2	0248	0248.5	1	IIIG
			LEAR				0248.0	0249.3	1				CONT
			PALE				0248.0	0250.2	2				V
			CULG				0249	0250	1	0249		1	IIIG
	0430	0634	WEIS										
	0500	1800	DWIN										
			CULG	0520.5	0717.5		0328.5	0715					IS,W
			CULG	0623		1	0623	0624	3				IIIG,V,Z
			CULG	0648.5		1	0648.5	0650	2				IIIG,Z
	0915	1827	WEIS				0931.3	0932.3	2				IIIG
			WEIS				0950.4	0950.8	1				IIIG
			WEIS				0954.9	0955.2	1				IIIB
			WEIS				0956.7	0958.3	3				IIIG
			WEIS				1033.5	1033.7	1				IIIB
			WEIS				1037.3	1037.5	2				IIIG
			WEIS				1041.5	1043.2	3				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
18			WEIS				1133.7	1133.9	1				IIIB
			WEIS				1139.7	1140.0	1				IIIB
			WEIS				1192.2	1102.4	1				IIIB
			WEIS				1248.7	1248.8	1				IIIB
	1233	2245	HARV				1251	2245	2				I
			WEIS				1304.4	1304.6	2				IIIB
			WEIS				1419.9	1420.2	2				IIIB
			HARV				1420	1905	2				IIIN
			HARV				1437	1438	3				IIIG,V
			SGMR				1437.7	1438.0	1				V
			WEIS				1437.7	1438.5	3				IIIG
			WEIS				1454.1	1454.2	1				IIIB
			WEIS				1456.2	1456.3	1				IIIB
			WEIS				1640.3	1640.6	1				IIIB
			WEIS				1651.7	1651.8	1				IIIB
			WEIS				1654.3	1654.4	1				IIIB
			HARV				1715		3				IIIB
			WEIS				1715.4	1715.7	2				IIIB
			SGMR				1715.4	1715.8	1				V
			WEIS				1737.2	1737.6	1				IIIG
			PALE				1930.8	1933.8	2				V
			HARV				1931	1933	3				IIIG,V
			HARV				1941	1942	3				IIIG
			PALE				1941.7	1942.0	2				III
			HARV				2036	2042	2				IIIGG
			PALE				2036.0	2042.2	2				CONT
	2040	2400	CULG	2104.5	2400	1							IN
			CULG				2105.5	2400					IIIS,W
			CULG				2326.5	2329	2				IIIGG
			LEAR				2342.8	2343.6	1				CONT
			CULG	2343	2343.5	1	2343	2343.5	2	2343	2343.5	1	IIIG
			CULG				2344	2357	1				IIIS
19			CULG				0000	0704.5					IIIS,W
	0000	0715	CULG	0000	0715	1							IS,C
			LEAR				0003.1	0008.5	1				CONT
			CULG				0004	0715					IS,W
			CULG				0008	0008.5	2	0008	0008.5	1	IIIB
			CULG				0057	0059.5	1				IIIGG
			LEAR				0057.3	0059.3	1				CONT
			LEAR				0113.9	0114.3	1				CONT
			CULG				0114	0713	1	0114	0349	1	IIIN
			LEAR				0125.7	0126.0	1				CONT
			LEAR				0127.2	0142.3	1				S
			LEAR				0147.8	0149.1	2				CONT
			CULG				0149	0150	2	0149	0149.5	1	IIIG
			LEAR				0150.0	0940.0	1				B
			CULG				0322	0323	2	0322	0322.5	1	IIIGG
			CULG				0348.5	0349	2	0348.5	0349	1	IIIB
			PALE				0348.8	0357.3	2				CONT
			CULG				0355.5	0357	2				IIIG,V
			CULG							0423	0645		SWF
			CULG	0432	0433		0432	0433					IIIG,W
	1329	1827	WEIS				0442	1526	2				IS
			CULG	0442.5	0715								IIIS
	0431	1320	WEIS				0514	1815	2				IIIS
			CULG				0514	0713	1				IIIS
	0458	1805	DWIN	0516.5	0517.1	1						IV	
			DWIN	0522.3	0527.6	2						IV	
			CULG				0526		1			IV	
			CULG				0534.5	0550	2			II	
			WEIS				0534.9	0549.2	2			II	HARM
			LEAR				0535.5	0541.4	1			II	
			LEAR				0541.4	0640.4	1			IV	
			CULG				0541.5		2				IIIB
			DWIN	0558.1	0619.0	2						IV	
			WEIS				0558.4	0600.4	3			II	HARM
			WEIS	0558.4	0601.7	2							CONT
			CULG	0558.5	0715	1	0558.5	0715	2			IV	
			LEAR				0558.5	0559.4	2				CONT

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
19			WEIS				0711.3	0713.2	3				IIIG
			DWIN	0850.2	0930	1						IV	
			WEIS				1007.2	1020.9	3				IIIGG
			SGMR				1016.3	1017.0	1				CONT
			SGMR				1123.4	1159.8	1				B
			WEIS				1204.7	1205.0	2				U
	1233	2310	HARV				1236	2015	2				I
			HARV				1252	1848	2				IIIN
			HARV				1358		3				IIIG
			SGMR				1358.0	1358.3	2				V
			HARV				1457	1459	3				IIIG
			WEIS				1556.4	1600.4	3				IIIGG
			HARV				1557	1600	3				IIIGG,V
			DWIN	1558.6	1559.6	2							IIIG
			SGMR				1559.9	1600.1	3				V
			HARV				1750	1751	2				IIIG
			HARV				1805	1809	2				IIIG
			HARV				1829	1830	3				IIIG
			PALE				1835.3	1845.5	2				S
			PALE				1940.2	1942.6	2				V
			HARV				2015	2310	3				I
			PALE				2024.8	2134.8	2				S
			HARV				2039		3				IIIG
			HARV				2059		3				IIIG
	2040	2400	CULG				2059	2400					IIIS,W
			CULG				2104	2400	1				IS
			CULG	2104	2204								IS,W
			CULG				2134.5	2249	1				RSDP,N
			CULG	2211.5	2352								IN,W
			CULG				2213	2224	1				IIIS
			PALE				2334.9	2336.1	2				CONT
			CULG				2335	2336	2	2335	2336	1	IIIG
			LEAR				2335.5	2335.7	1				V
			CULG				2337	2400	1				IIIS
20			CULG				0000	0007	1				IS
	0000	0735	CULG				0000	0146					IIIS,W
			CULG				0007	0140.5					IS,W
			CULG	0016	0717.5	1							N,DCIM
			CULG				0030	0649					RSDP,N
			CULG	0056		1	0056	0056.5	2	0056		1	IIIG,Z
			LEAR				0056.1	0056.4	1				V
			PALE				0056.1	0056.4	2				III
			LEAR				0116.8	0136.6	1				S
			CULG	0117.5		1	0117.5		1				IIIB
			CULG				0125.5		2	0125.5		1	IIIB
			PALE				0125.6	0213.6	2				S
			CULG				0139.5	0141	2	0139.5	0140	1	IIIG,V
			LEAR				0139.9	0142.0	2				S
			CULG				0144	0144.5	2	0144	0145	1	IIIG,V
			CULG				0158	0305					IN,W
			CULG				0202.5	0257					IIIN,W
			LEAR				0248.2	0940.0	1				B
			CULG				0301	0505					IIIS,W
			CULG				0333.5	0334	1				IIIG,V
			CULG				0340.5	0341	1	0340.5		1	IIIG,V
			CULG				0341	0347	1				IIIN,U
			PALE				0349.5	0444.0	1				S
			CULG	0350		1	0350	0350.5	1				IIIG,V
			CULG	0427	0427.5	1	0427.5	0428.5	2	0427.5	0428	1	IIIG,V
			CULG				0505	0532	1				IS
			CULG				0505	0532	1				IIIS
			CULG	0546		1	0546		1				IIIB
			CULG	0549	0651	1	0549.5	0657	2				IIIN
	0626	1834	WEIS				0635.8	0636.0	1				IIIB
			WEIS				0639.3	0640.1	1				IIIB
			LEAR				0646.3	0652.0	2				CONT
			WEIS				0646.4	0651.2	3				IIIGG
			CULG	0655	0658.5	1	0655	0658.5	2				IIIGG
			WEIS				0655.0	0659.4	3				IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
20			LEAR				0655.0	0659.4	2				CONT
			WEIS				0738.6	0738.8	2				IIIG
			WEIS				0753.0	0753.3	1				IIIB
			WEIS				0839.3	0839.6	1				IIIG
			WEIS				0851.7	0851.9	1				IIIB
			WEIS				0907.8	0908.0	1				IIIB
			WEIS				1040.9	1041.6	2				IIIG
			WEIS				1043.4	1043.7	2				IIIB
			WEIS				1046.2	1046.4	1				IIIB
			WEIS				1108.7	1109.7	1				IIIG
			WEIS				1117.9	1118.0	1				IIIB
			WEIS				1126.3	1128.9	2				IIIG
			WEIS				1131.4	1159.8	1				IIIGG
			WEIS				1214.6	1216.0	1				IIIG
			WEIS				1223.6	1224.3	2				IIIG
			WEIS				1234.8	1235.0	1				IIIB
	1233	2245	HARV				1240	2245	2				IN
			HARV				1302	1303	2				IIIB,U
	0712	1800	DWIN	1310.5	1312.4	2							IIIG
			HARV				1313	1326	2				IIIN
			HARV				1322	1332	3				II
			WEIS				1322.2	1354.6	2				II HARM
			SGMR				1323.0	1330.0	1				II
			WEIS				1334.7	1346.0	1				IIIGG
			WEIS				1351.1	1351.3	2				IIIB
			WEIS				1433.5	1433.8	2				IIIB
			HARV				1500		3				IIIG
			WEIS				1500.7	1501.4	2				IIIG
			SGMR				1500.8	1501.2	1				V
			DWIN	1554	1603	1							IV
			SGMR				1604.2	1800.0	1				B
			WEIS				1606.3	1627.5	2				II HARMHB
			HARV				1608	1614	3				II
			SGMR				1608.0	1618.0	2				II
			HARV				1619	1622	3				II
			HARV				1652	1653	2				IIIG
			WEIS				1653.1	1653.3	1				IIIB
			PALE				2025.8	2028.8	3				V
			HARV				2027	2028	3				IIIG,V
			HARV				2051	2059	3				IIIGG
	2040	2400	CULG	2100	2400								IS,W
			PALE				2108.5	2113.2	3				V
			CULG	2109			2109	2109.5					IIIG,W
			HARV				2109	2112	3				IIIGG,V
			CULG	2110.5	2111.5	1	2110	2112	2				IIIGG,V
			CULG				2121	2359.5					IIIN,W
			PALE				2137.8	2213.2	1				S
			CULG				2138	2400	1				IIIS
			CULG				2138	2210					IS,W
			CULG				2158	2159	1				POSS II
			CULG				2210	2400	1				IS
			CULG				2212.5	2213	1				IIIG
			CULG				2230	2233	1				IIIG,V
			PALE				2306.4	2307.9	2				V
			CULG				2306.5	2307.5	2				IIIGG
			CULG	2325.5	2326	1	2325.5	2326	1				IIIG
			LEAR				2335.5	2335.7	1				V
			PALE				2342.2	2342.8	1				III
21			CULG				0000	0704					IIIS,W
	0000	0737	CULG	0000	0600								IS,W
			CULG				0000	0140.6	1				IS
			CULG				0000	0658.5	1				IIIN
			CULG				0002	0003	3	0002	0003	2	IIIG
			CULG				0200.5	0201	2				IIIG
			CULG				0320	0320.5	2	0320	0320.5	1	IIIG
			CULG				0353	0354	2	0353	0354	1	IIIG
			CULG	0400.5	0715	1							IV
			CULG	0402.5	0403	1	0402.5	0403	1				IIIG
			CULG							0403	0420		SWF,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
21			CULG				0403.5	0418.5	1				II H
			LEAR				0405.3	0702.1	1				IV
			CULG				0410	0645	1				IS
			CULG				0416	0634	1				IIIS
			CULG				0420	0520	1				IV
	0425	0730	WEIS				0426	1826	2				IIIS
			CULG				0637	0639	1				IIIGG
			CULG				0655	0655.5	2				IIIG,V
			LEAR				0655.0	0655.7	1				V
			LEAR				0800.1	0800.3	1				V
	0503	1800	DWIN	0929.3	0929.8	1							IIIG
	0735	1838	WEIS				1001	1805	2				IS
	2245	2245	HARV				1243	1449	2				IC
			HARV				1332	1729	2				IIIN
			SGMR				1436.0	1800.0	1				B
			HARV				1449	2245	3				IC
			DWIN	1621	1625	2							IV
			HARV				1736	2218	2				IIIS
			HARV				2057	2059	3				IIIG
	2039	2400	CULG	2100	2400		2100	2400	1				IS,C,DC
			CULG				2100	2400	1				S,RSDP
			CULG				2100	2400	1				IIIS
			CULG	2101	2102	1	2101	2102	1				IIIG,U
			HARV				2101		3				IIIG
			PALE				2130.5	0443.0	1				B
			LEAR				2342.5	0941.0	1				B
22	0000	0715	CULG	0000	0715	1	0000	0506	1				IS,C,DC
			CULG				0000	0506	1				IIIS
			CULG				0000	0506	1				S,RSDP
			CULG							0153	0440	1	IIIN
			CULG	0204	0220	1							N,DCIM
			CULG				0246	0247	2	0246	0247	2	IIIG,V
			CULG				0404	0506	2				IIIN
	0426	1326	WEIS				0426	1832	2				IIIS,CONT
	1331	1832	WEIS				0427	1819	2				IS,CONT
			CULG				0506	0715	2				S,RSDP
			CULG				0506	0715	2				IIIS
			CULG	0535	0715	2	0506	0715	2				IS,C,DC
			SGMR				1100.7	1100.9	1				III
			SGMR				1121.9	1123.0	1				CONT
			WEIS				1122.0	1122.3	3				IIIG
			SGMR				1141.0	1800.0	1				B
	1233	2325	HARV				1242	2225	3				IC
			HARV				1244	1915	2				IIIN
			HARV				1421	1424	2				IIIG
			HARV				1536	1540	3				IIIGG
			WEIS				1536.0	1540.0	2				IIIG
			SGMR				1539.1	1539.9	2				CONT
	0500	1839	DWIN	1539.4	1540.8	1							IIIG
			HARV				1615	1618	3				IIIG,V
			WEIS				1615.3	1617.8	3				IIIGG/V
			PALE				1801.9	1807.1	2				CONT
			HARV				1805	1806	3				IIIG,V
			WEIS				1805.3	1806.1	3				IIIG
			DWIN	1819	1839	2							IV
			WEIS				1829.8	1831.6	2				IIIG
			HARV				1830	1837	3				IIIGG
			HARV				1917	2225	3				IIIS
			CULG				2105	2303	1				IS,C
			CULG				2105	2400	1				IIIS
	2105	2400	CULG	2105	2300	1							IS
			PALE				2114.0	2117.8	1				CONT
			PALE				2117.8	2229.7	1				B
			CULG				2121	2400					RSDP,N
			CULG				2143	2315	2				IIIN
			PALE				2229.7	2230.5	2				V
			PALE				2230.5	0435.0	2				B
			CULG	2300	2400								CONT
			CULG				2301	2305	2				IIIS

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
22			CULG				2303	2400	2				IS,C,DC
23			CULG				0000	0723	1				IIIS
			CULG				0000	0723	1				IS,C,DC
	0000	0738	CULG	0000	0053	1							CONT
			CULG							0005	0449		IIIN,W
			CULG				0015	0716					RSDP,N
			CULG	0020	0721								IS,W,DC
			CULG				0026	0113	1				SCINT
			CULG	0058		1	0058	0058.5	3	0058	0058.5	3	IIIG
			CULG				0346		1				DP
	0427	0850	WEIS				0428	1831	2				IS
			WEIS				0428	1818	3				IIIS,DP,F
	0428	0524	WEIS				0430	1805	2				IIIS
			WEIS				0444.4	0444.7	2				IIIG
			CULG	0524	0524.5	2	0524	0525	3	0524	0524.5	1	IIIG,U,Z
			WEIS				0524.6	0624.7	3				IIIG
			WEIS				0658.7	0704.6	3				IIIGG
			WEIS				0852.3	0952.7	3				IIIG
	0500	1825	DWIN	0900	0913	2						IV	
	0614	1829	WEIS				0930	1215	3				CONT
			DWIN	0953.4	0953.8	2							IIIG
			DWIN	0954.7	0956.2	2							IIIG
			DWIN	0958.0	0959.5	3							IIIG
			DWIN	1000.8	1001.3	3							IIIG
			WEIS				1000.9	1002.4	3				DCIM
			DWIN	1001.9	1002.8	3							IIIG
	0943	1831	WEIS				1130	1808	3				CONTP
			WEIS				1144.3	1147.8	3				IIIGG
	1233	2250	HARV				1240	2250	3				IC
			WEIS				1502.5	1503.6	2				IIIGG
			DWIN	1518.8	1509.4	2							IIIG
			HARV				1523	1800	2				IIIN
			HARV				1701		2				IIIG
			WEIS				1701.2	1701.6	3				IIIG
			HARV				1817		3				IIIG
			HARV				1834	2250	2				IIIS
			CULG				2056	2355	2				IS,C
	2038	2355	CULG	2056	2355								IS,W
			CULG				2100	2355	2				IIIS
			CULG				2100	2355	1				RSDP
			CULG				2110	2355	1				DP
			CULG							2302.5	2330		SWF,W
			CULG	2308	2308.5	1	2308	2308.5	2				IIIG
			CULG	2322.5	2323	2	2322.5	2323.5	3				IIIG
			CULG	2343		1	2343		1				IIIB
24	0050	0738	CULG	0057	0720								IS,W
			CULG				0057	0722	1				IS,C,DC
			CULG				0057	0724	1				IIIS
			CULG				0111	0721					RSDP,N
			CULG	0119	0126	1							IIIN
			CULG				0144	0230	1				DP,N
			CULG				0336	0337	2	0336.5	0337	2	IIIG
			CULG	0444	0444.5	2	0444	0444.5	1				IIIG
			CULG				0450	0723					SCINT
			CULG	0543	0705	1							IIIN
	0500	1810	DWIN	0544.5	0545.0	2							IIIG
			CULG				0546	0546.5	2				IIIG
			CULG				0547	0547.5	2				IIIG
			CULG	0603	0604.5	1							DCIM
			CULG	0658.5	0659	2	0658.5	0659	2				IIIG
			CULG	0700.5	0702.5	3	0700.5	0702.5	2				IIIGG
			DWIN	0701.2	0701.8	1							IIIG
			DWIN	0852.1	0852.4	1							IIIG
			DWIN	1144.1	1147.8	1							IIIG
	1233	2255	HARV				1250	1820	1				IN
			HARV				1437	2255	2				IIIN
			HARV				1439		3				IIIG
			DWIN	1448.3	1448.7	1						IV	

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
24			HARV				1459	1503	3				IIIGG
			HARV				1535	1536	2				IIIG
			DWIN	1805.6	1805.8	2							IIIG
			HARV				1820	2255	3				IC
			HARV				1823	1829	3				IIIGG
			HARV				1833	1843	3				IIIGG
			HARV				2006	2008	3				IIIGG
	2038	2400	CULG	2055	2400								IS,W,DC
			CULG				2055	2400	1				IS,C,DC
			CULG				2055	2229	1				IIIS
			CULG				2126	2400	1				RSDP,N
			CULG				2227	2227.5	2				IIIG
			CULG				2229	2400					IIIS,W
			CULG				2304	2400	1	2324	2359	1	IIIN
25			CULG				0000	0719	1				IS,C
	0000	0739	CULG	0000	0721								IS,W,DC
			CULG				0000	0719	1	0129	0143	1	IIIS
			CULG				0002	0719	1				RSDP,N
			CULG	0222	0222.5	2	0222	0222.5	2				IIIG
			CULG	0229	0230	2	0229.5	0230	1				IIIG
			CULG				0320.5		2				IIIB
	0430	1235	WEIS				0437	1717	2				IIIN
			CULG				0440	0719	1				SCINT
			CULG	0447	0710	2							IIIN
	1243	1828	WEIS				0447.8	0448.4	3				DCIM
			CULG				0451	0451.5	2	0451	0451.5	2	IIIG
			CULG				0451	0451.5	2				DP
			WEIS				0458.4	0503.9	3				IIIGG,DCIM
			CULG	0459.5	0505	2							DC
			WEIS				0500	1738	2				IN
			CULG				0532		2				IIIB
	0505	1851	DWIN	1105.5	1107.3	2							IIIG
			WEIS				1124.7	1126.1	3				IIIG
			WEIS				1233.7	1234.6	3				IIIG
	1233	2255	HARV				1234	2246	2				IIIN
			HARV				1246	2255	2				I
			HARV				1248	1258	2				IIIGG
			HARV				1309	1311	3				IIIG
			HARV				1401	1409	2				IIIGG
			HARV				1427	1428	3				IIIG
			HARV				1440		2				IIIG
			HARV				1506	1507	2				IIIG
			WEIS				1506.3	1507.3	3				IIIG/U
			WEIS				1517.7	1519.3	2				DCIM
			HARV				1518	1519	3				IIIG
			WEIS				1542.8	1548.5	2				DCIM
			HARV				1543	1549	3				IIIGG
			DWIN	1710.5	1711.5	1							IIIG
			WEIS				1726.7	1727.2	3				IIIG
			HARV				1727	1735	3				IIIGG
			WEIS				1729.0	1732.8	2				IIIG
			WEIS				1735.2	1735.5	3				IIIB
			HARV				1740	1755	3				IIIGG
			WEIS				1740.3	1740.7	3				IIIG
			WEIS				1747.3	1747.6	3				IIIG
			WEIS				1754.4	1754.7	1				DCIM
			DWIN	1759.5	1801.5	1							I
			HARV				1817	1818	2				IIIG
			HARV				1827	1836	3				IIIGG
			DWIN	1849.9	1850.2	2							IIIG
			HARV				1911	1921	3				IIIGG
			HARV				1939	1940	2				IIIG
			HARV				1948	1949	3				IIIG
			HARV				2013	2014	3				IIIG
			CULG				2055	2400	1				IS,C
	2038	2400	CULG	2055	2337								IS,W
			CULG				2058	2400					IIIS,W
			CULG	2201	2400	1	2151	2354	1				IIIN
			HARV				2202		2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
25			HARV				2211	2214	3				IIIGG
			CULG	2211.5	2213	2	2211.5	2213	1				IIIGG
			CULG	2238	2239	1	2238.5	2239	2				IIIG
			HARV				2238	2239	3				IIIG
			CULG				2244.5		2				IIIB
			CULG	2327	2328.5	2	2327	2328.5	1				IIIGG
			CULG	2337	2400	1							IS
			CULG	2337	2338	2	2337	2338	2				IIIGG
			CULG	2347.5	2348.5	2	2347.5	2348.5	2				IIIG
			CULG				2359.5		2				IIIB
26	0000	0739	CULG				0000	0024	1				IS,C,DC
			CULG				0000	0320					IIIS,W
			CULG	0000	0055								IS,W
			CULG	0006	0007.5	2	0006.5	0007	1				IIIGG
			CULG				0015.5		1	0015.5		2	IIIB
			CULG				0024	0725					IS,W
			CULG							0041	0444		IIIN,W
			CULG	0055	0723	1							IS,DC
			CULG	0136	0137	2	0136	0137	2				IIIGG
			CULG	0138.5	0139.5	2	0138.5	0139.5	1				IIIG
			CULG	0207	0703	2	0207	0703	1				IIIN
			CULG							0409	0420		SWF,W
	0430	1826	WEIS				0430	1750	2				IN,DC
			WEIS				0439	1758	3				IIIN
			CULG				0444		2	0444		2	IIIB
	0500	1820	DWIN	0559	0607	2							IIIGG
			DWIN	0705.6	0706.1	2							IIIG
			DWIN	0724.5	0726.0	1							IIIG
			DWIN	0800.5	0801.0	2							IIIG
			DWIN	0802.5	0808.2	2							IIIGG
			DWIN	0812	0830	3						IV	
			WEIS				0848.0	0849.2	3				IIIG
			WEIS				0903.7	0905.7	3				IIIG
			DWIN	0945.5	0945.8	2							IIIG
			DWIN	0958.9	1007.0	2							IIIGG
			WEIS				1010.9	1011.3	3				IIIB
			DWIN	1023.4	1024.6	2							IIIG
			WEIS				1023.7	1025.4	3				IIIG
			DWIN	1057.6	1057.7	2							IIIG
			WEIS				1102.3	1102.5	3				IIIG
			WEIS				1112.5	1113.8	3				DCIM
			WEIS	1154.0	1154.5	2	1154.0	1154.5	2				DCIM
			DWIN	1211.4	1300	2						IV	
	1234	2330	HARV				1238	2303	2				IIIN
			HARV				1244	2330	2				IC
			HARV				1306	1307	2				IIIG
			DWIN	1349	1354	3						IV	
			WEIS				1349.9	1354.6	3				UIIIG, DCIMR
			HARV				1350	1353	3				IIIG,V
			DWIN	1411.1		2							IIIB
			DWIN	1434.1	1434.5	2							IIIG
			HARV				1511	1516	2				IIIG
			DWIN	1530.5	1338.7	2							IIIG
			HARV				1552	1553	3				IIIG
			WEIS				1552.1	1552.8	3				IIIG
			HARV				1642	1648	3				IIIGG,V
			DWIN	1644.0	1647.0	1						IV	
			WEIS				1654.2	1645.6	3				IIIGF
			PALE				1715.0	0451.0	1				B
			DWIN	1809.2	1819.0	2							IIIG
			HARV				1952	1959	2				IIIGG
	2038	2400	CULG				2049	2049.5	2				UNCLF
			HARV				2049	2054	3				IIIG,V
			CULG				2053	2400					IIIS,W
			CULG	2053	2400								IS,W
			CULG				2053	2400	1				IS,C,DC
			CULG	2125.5	2126.5	1							DCIM
			CULG	2129	2129.5	2							IIIG
			CULG				2131	2351	1				IIIN

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
26			HARV				2131	2132	2				IIIG
			CULG							2131	2140	1	SWF,W
			CULG	2138.5	2139	1	2138.5	2139	2				IIIG
			HARV				2139	2140	3				IIIG
			HARV				2203	2205	3				IIIG,V
			CULG	2203.5	2204	1	2203.5	2204	3				IIIG
			HARV				2233	2238	3				IIIGG,V
			CULG				2233	2238	3				IIIGG
			CULG				2236.5	2237	1				DP
			CULG				2237	2238	1				RSDP,N
			CULG	2243	2350								DCIM,N
27			CULG				0000	0725					IIIS,W
			CULG				0000	0308	1				IS,C,DC
	0000	0738	CULG	0000	0722								IS,W
			CULG	0006	0709	1	0016	0709	1	0006	0709	1	IIIN
			CULG	0040	0040.5	1	0040	0040.5	2	0040	0040.5	2	IIIG
			LEAR				0040.2	0040.6	1				V
			PALE				0040.3	0041.1	2				V
			LEAR				0049.5	0146.5	1				S
			CULG	0103	0710.5	2	0103	0710	3	0103	0710	2	IIIGG,N,V
			CULG	0103	0109.5	1							DCIM,N
			PALE				0103.3	0111.5	2				CONT
			LEAR				0201.3	0943.0	1				B
			CULG				0308	0726	1				IS,DC
			LEAR				0312.4	0318.5	2				CONT
			PALE				0312.4	0317.1	2				CONT
			CULG				0315.5	0317.5	1				RSDP,N
			LEAR				0405.2	0409.0	3				CONT
			PALE				0405.8	0408.9	2				V
			CULG	0407	0645	1							DCIM,N
			LEAR				0417.8	0418.6	2				CONT
			LEAR				0426.2	0519.3	2				S
			LEAR				0600.7	0607.8	2				CONT
			LEAR				0614.8	0623.6	3				CONT
			CULG	0630.5	0631.5	3							DCIM
			CULG							0631.5	0640	1	SWF
	0631	0644	DWIN	0633	0644	2						IV	
			LEAR				0656.4	0659.4	2				CONT
	0711	1732	WEIS				0718	1732	3				IIIN
			LEAR				0736.9	0804.4	2				S
			SGMR				1044.9	1101.1	1				CONT
			WEIS				1135.3	1140.9	3				DCIMRS
			SGMR				1140.2	1140.5	2				CONT
	1233	1920	HARV				1245	1919	2				IIIN
			HARV				1246	1920	2				IC
			HARV				1305		2				IIIG
			SGMR				1305.3	1305.6	1				CONT
			WEIS				1309.8	1312.4	3				IIIG,DCIM
			HARV				1310	1312	3				IIIG
			HARV				1326	1327	2				IIIG
			SGMR				1327.1	1327.4	1				V
			HARV				1359		3				IIIG
			HARV				1450	1458	3				IIIGG
			WEIS				1454.1	1457.7	3				DCIM
			WEIS				1536.7	1539.3	2				DCIM
			HARV				1537	1539	3				IIIGG
			HARV				1544	1553	3				IIIGG
			HARV				1601	1612	2				IIIGG
			HARV				1706		3				IIIG
			SGMR				1706.1	1706.4	1				V
			WEIS				1706.1	1706.5	3				IIIB
			PALE				1706.1	1706.3	1				V
			WEIS				1723.4	1731.5	3				IIIGG, DCIMR
			HARV				1724	1731	3				IIIGG,V
			HARV				1731	1736	2			II	
	2010	2400	CULG	2054	2400								IN,W
			CULG				2055	2218					IIIS,W
			CULG				2055	2400					IS,W
			CULG				2132		1				IIIB,U

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
27			CULG	2210.5	2213	2	2210	2213	1				IIIGG
			CULG	2228	2344		2218	2400					IIIN,W
			CULG				2344.5	2345	1				IIIG
28			CULG				0000	0721					IS,W,C
			CULG				0000	0304					IIIS,W
	0000	0738	CULG	0000	0716								IN,W
			CULG				0012	0700	1	0024	0449	1	IIIN
			CULG	0040	0644								IIIN,W
			PALE				0055.5	0138.5	1				S
			LEAR				0137.6	0139.5	1				CONT
			CULG	0138	0139	2	0138	0139	2	0138.5	0139	1	IIIG
			PALE				0141.2	0230.5	1				S
			CULG	0206	0206.5	1							DCIM
			LEAR				0255.7	0303.4	2				V
			PALE				0257.5	0321.6	2				S
			CULG	0258	0302	2	0257.5	0302	3	0258	0300	2	IIIGG,V
			CULG				0304	0640					IIIN,W
			CULG				0304.5	0305	2	0304.5	0305	2	IIIG
			LEAR				0304.5	0321.6	1				S
			CULG				0315.5	0316	1	0315.5	0316	2	IIIG
			LEAR				0335.6	0403.7	1				S
	0432	0822	WEIS				0445	0822	1				IIIN
			LEAR				0447.5	0449.5	2				CONT
			CULG				0448.5	0449.5	2	0449	0449.5	1	IIIG
			WEIS				0456.4	0457.4	2				DCIM
			CULG	0456.5	0457.5	1	0456.5	0457	1				IIIG
			LEAR				0523.0	0944.0	1				B
			WEIS				0600	0711	1				IN
			CULG				0640	0700					IIIS,W
			CULG				0645	0700					SCINT
			CULG	0649.5	0650	2							IIIG
			WEIS				0649.8	0650.3	2				DCIM
			CULG				0651	0652	2				IIIG
			WEIS				0658.3	0700.6	3				IIIGG
			CULG				0658.5	0700	2				IIIG
			LEAR				0659.0	0700.5	2				CONT
	1233	2400	HARV				1246	2400	1				IN
			HARV				1302	2319	2				IIIN
			HARV				1329	1337	2				IIIGG
			SGMR				1329.9	1348.6	1				CONT
			HARV				1348		3				IIIG
			HARV				1500		2				IIIG
			HARV				1624		2				IIIG
			HARV				1637	1638	2				IIIG
			HARV				1707		2				IIIG
			PALE				1754.8	1755.8	2				III
			HARV				1755		3				IIIG
			HARV				1829	1830	3				IIIG
			HARV				1846		2				IIIG
			PALE				1922.1	1922.1	2				CONT
			HARV				2007	2017	3				IIIGG,V
			PALE				2007.3	2026.3	3			IV	
			HARV				2009	2017	3			IV	P
			PALE				2026.3	0430.0	1				B
	2038	2400	CULG				2100	2400					IS,W
			CULG				2100	2400					IIIS,W
			CULG				2116	2335	1				IIIN
			CULG	2145	2400								IN,W
			CULG	2145	2350								IIIN,W
			HARV				2145	2146	2				IIIG
			HARV				2215	2218	3				IIIG
			HARV				2245	2251	3				IIIGG
			CULG	2250	2250.5	1	2250	2251	2				IIIG
			CULG				2302		2				IIIB
			HARV				2314	2315	2				IIIG
			HARV				2322	2337	2				IIIG
			CULG				2341.5	2343	2	2341.5	2342	2	IIIG,V
			LEAR				2341.6	2348.8	1				CONT
			HARV				2342		3				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
28			HARV				2348	2349	3				IIIGG
			CULG	2348	2348.5	1	2348	2349	3				IIIG,V
29	0000	0738	CULG				0000	0730					IS,W
			CULG	0000	0720								IN,W
			CULG				0002	0720					IIIN,W
			CULG				0012	0704	1				IIIN
			LEAR				0036.9	0126.4	1				S
			CULG				0037	0037.5	2				IIIG
			CULG	0041.5	0042	1	0041.5	0042	2				IIIG
			CULG							0059	0158		IIIN,W
			CULG	0131	0132	1	0131	0132.5	3				IIIG
			LEAR				0131.3	0135.3	2				V
			CULG				0134.5	0135.5	1				DC
			CULG	0136.5	0137.5	1	0136.5	0137.5	2	0137	0137.5	1	IIIG
			LEAR				0137.1	0144.2	1				CONT
			LEAR				0305.8	0306.3	1				CONT
			LEAR				0455.3	0456.3	1				CONT
			CULG				0526	0532	1				II
			LEAR				0526.3	0533.2	1				V
			LEAR				0559.8	0600.3	1				CONT
			CULG	0607	0631	1							IIIN
			LEAR				0607.9	0612.9	1				CONT
			LEAR				0653.3	0653.6	1				CONT
			LEAR				0703.5	0803.5	1				S
	0750	0806	WEIS				0751.9	0752.2	1				IIIB
			WEIS				0759.2	0759.6	1				IIIB
			LEAR				0838.8	0944.0	1				B
	0842	1325	WEIS				0855.9	0856.7	1				IIIB
			WEIS				0858.7	0858.9	1				IIIB
			WEIS				0917.9	0919.3	2				IIIG
			WEIS				1021.0	1023.2	1				IIIG
			WEIS				1032.2	1033.4	1				IIIG
			WEIS				1035.1	1034.3	1				IIIG
			WEIS				1045.3	1045.5	2				IIIB,RS
			WEIS				1053.2	1053.5	2				IIIG
			WEIS				1056.7	1058.7	2				IIIG
			WEIS				1109.7	1111.2	1				IIIG
			SGMR				1112.3	1114.3	3				CONT
			WEIS				1113.4	1115.6	3				IIIG/V
			SGMR				1116.7	1117.2	1				CONT
			WEIS				1117.0	1120.6	2				IIIG
			WEIS				1140.2	1141.8	2				IIIG
			WEIS				1153.9	1154.2	2				IIIB
			SGMR				1210.5	1240.5	1				S
			WEIS				1211.3	1213.0	1				IIIG
			SGMR				1224.3	1226.4	3				V
			WEIS				1226.2	1229.3	3				IIIG/V
	1233	2255	HARV				1300	2255	1				IN
			SGMR				1404.9	1406.2	2				CONT
			HARV				1405		3				IIIG
			HARV				1412	2247	2				IIIN
			PALE				1737.8	1738.3	1				III
	1557	1825	WEIS				1741.7	1743.9	2				IIIG
			HARV				1742	1747	3				IIIG
			HARV				2001	2002	3				IIIG
			HARV				2032		2				IIIG
			PALE				2032.0	2032.9	2				III
			PALE				2042.4	2042.6	1				III
	2038	2400	CULG				2101	2400					IIIN,W
			PALE				2105.8	2106.1	1				III
			CULG				2114.5	2115.5	3				IIIG
			PALE				2114.8	2115.7	2				V
			HARV				2115		3				IIIG
			CULG				2120.5	2121.5	1				IIIG
			PALE				2120.8	2121.7	1				CONT
			CULG				2140	2145	1				IS
			CULG				2206	2318	1				IIIN
			CULG	2229	2230	1							IIIG
			PALE				2247.4	2248.3	2				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
29			CULG	2314	2333								IN,W
			LEAR				2341.6	2348.8	1				CONT
30	0000	0738	CULG				0004	0004.5	1				IIIG
			CULG				0005	0725					IIIN,W
			CULG	0007	0738								IN,W
			CULG	0252	0252.5	1	0252	0252.5	1				IIIG
			LEAR				0252.8	0256.5	1				V
			CULG	0253.5	0254	1	0253.5	0254	1				IIIG
			CULG	0318	0417								IIIN,W
			CULG				0436		1				IIIB
	0434	0607	WEIS				0535.8	0536.0	2				RS
			CULG				0537	0725					IS,W
			WEIS				0543.5	0543.7	1				IIIB
			LEAR				0621.7	0621.9	1				V
			LEAR				0651.4	0651.8	1				CONT
	0630	0736	WEIS				0651.5	0651.7	1				IIIB
			LEAR				0757.9	0758.3	1				V
	0823	1012	WEIS				0954.2	0954.4	2				IIIG
	1154	1824	WEIS				1242.5	1245.6	1				IIIG
	1233	2305	HARV				1316	2356	2				IIIN
			HARV				1339	1446	1				IN
			HARV				1354		2				IIIG
			WEIS				1355.4	1356.0	1				IIIG
			HARV				1412	1414	3				IIIG
			WEIS				1414.2	1414.3	1				IIIG
			HARV				1419	1421	3				IIIG
			WEIS				1420.5	1421.3	3				IIIG
			HARV				1446	1510	3				I
			HARV				1457	1458	3				IIIG
			WEIS				1457.4	1457.6	1				IIIB
			HARV				1510	2022	1				IN
			HARV				1540	1545	3				IIIG
			HARV				1602	1604	2				IIIG
			WEIS				1603.7	1604.4	2				IIIG
			HARV				1631	1634	2				IIIG
			WEIS				1632.0	1633.9	2				IIIG
			WEIS				1700.8	1700.9	1				IIIB
			WEIS				1703.7	1703.8	2				IIIB
			HARV				1704	1707	3				IIIG
			WEIS				1705.3	1707.2	3				IIIG
			PALE				1706.6	1706.8	1				III
			WEIS				1739.2	1739.4	2				IIIG
			PALE				1746.8	1747.1	2				III
			WEIS				1746.9	1747.2	2				IIIG
			HARV				1821	1822	3				IIIG
			HARV				1831	1833	3				IIIG
			PALE				1914.3	1914.4	1				III
			PALE				1916.9	1917.3	2				V
			HARV				1917	1925	3				IIIG
			PALE				1919.6	1919.9	2				V
			PALE				1924.8	1924.9	1				III
			HARV				1950	1952	3				IIIG,V
			PALE				1950.9	1952.9	2				V
			HARV				2022	2134	3				I
			HARV				2039	2040	2				IIIG
	2038	2400	CULG				2045	2400					IIIS,W
			HARV				2046		3				IIIG
			CULG	2051	2200		2050	2400					IS,W
			CULG				2058	2347	1				IIIN
			HARV				2058	2100	3				IIIG
			CULG				2114.5	2115.5	3				IIIG
			HARV				2115		3				IIIG
			CULG	2131.5	2132	2	2131.5	2133	3				IIIG,V
			HARV				2132	2136	2				IIIG,IV P
			CULG	2133	2135.5	2	2133.5	2137	3				IIIG,V
			HARV				2134	2300	1				IN
			HARV				2156	2157	3				IIIG
			CULG	2157	2400	1							IIIN
			CULG				2158		2				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
30			HARV				2220	2227	3				IIIG,V
			CULG	2220.5	2222	2	2220.5	2221	1				IIIGG
			CULG	2223	2224	2							IIIG
			PALE				2246.5	2251.6	2				CONT
			HARV				2247	2251	2				IIIG
			CULG				2248.5	2250.5	2				IIIG
			CULG							2330	2345		SWF,W
			CULG	2343.5	2344.5	2	2343.5	2345.5	2				IIIG
			PALE				2344.7	2345.4	1				V
			CULG							2345	2400	1	SWF
			CULG	2345.5	2347	2	2345.5	2347	1				IIIGG
			LEAR				2358.4	2359.6	2				CONT
			PALE				2358.4	0000.4	3				V
			CULG	2358.5	2359	1	2358.5	2400	3				IIIG,V
31			CULG				0000	0715					IS,W
	0000	0738	CULG				0000	0710					IIIN,W
			CULG				0001.5	0649	1				IIIN
			CULG	0003	0440								IN,W
			PALE				0013.9	0019.6	1				CONT
			CULG	0014	0606	1	0014	0600	2				IIIG,N
			CULG	0021	0022	2							IIIG
			PALE				0050.2	0101.4	3				V
			CULG	0050.5	0056	1	0050.5	0100	3	0052	0059	1	IIIGG,V
			LEAR				0050.8	0112.3	2			II	
			CULG	0052	0057	1						IV	P
			CULG							0052	0100		SWF,W
			CULG				0100	0112	2			II	
			PALE				0102.4	0111.2	2				V
			PALE				0115.2	0121.3	1				CONT
			LEAR				0116.8	0121.5	1				CONT
			LEAR				0133.2	0136.1	2				CONT
			PALE				0133.4	0136.2	3				V
			CULG	0133.5	0134	1	0133	0136	3	0133	0136	3	IIIG,V
			LEAR				0141.3	0147.9	1				S
			PALE				0142.4	0148.9	1				CONT
			LEAR				0215.8	0217.1	1				CONT
			PALE				0215.8	0225.2	2				CONT
			CULG	0216	0216.5	2	0216	0217	2	0216	0217	1	IIIG
			LEAR				0218.3	0219.5	2				CONT
			CULG				0218.5	0219.5	3	0218.5	0219.5	2	IIIG
			LEAR				0224.5	0225.3	2				CONT
			CULG				0224.5	0225	3	0224.5	0225.5	3	IIIG,V
			PALE				0228.9	0235.7	1				CONT
			LEAR				0235.4	0235.7	1				CONT
			PALE				0307.8	0313.3	1				CONT
			LEAR				0318.5	0322.4	1				CONT
			PALE				0326.5	0329.7	2				V
			LEAR				0326.5	0334.3	2				V
			CULG	0327	0328	1	0326.5	0333	3	0327.5	0329.5	2	IIIGG,V
			LEAR				0341.8	0343.9	1				CONT
			CULG	0344.5	0346.5	1							DCIM
			LEAR				0417.8	0418.4	1				CONT
			CULG	0439.5	0440	2							IIIG
			CULG	0440	0720								IS,W
			CULG	0455.5	0456	1	0455.5	0456	3				IIIG,Z
			LEAR				0455.8	0553.4	2				S
			CULG				0458.5		1	0458.5		1	IIIB
			CULG				0505	0506.5	3	0505	0506.5	1	IIIG,V
			CULG	0518	0519	1	0518.5	0520.5	3				IIIG,V
			CULG	0523	0523.5	2	0523	0523.5	3				IIIG
			CULG				0552.5	0553	3				IIIB,V
			CULG	0555.5	0559	2	0555.5	0559	3				IIIGG
			LEAR				0555.6	0648.6	2				S
			CULG				0652	0715					SCINT
	0713	1448	WEIS				0730.4	0731.4	2				DCIM
			WEIS				0846.8	0847.2	1				IIIG
			WEIS				1027.4	1027.8	1				IIIB
			WEIS				1058.8	1059.4	3				IIIG
			WEIS				1107.7	1108.2	1				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JULY 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
31			WEIS				1205.4	1206.6	1				IIIG
			WEIS				1210.0	1210.2	1				IIIG
			WEIS				1241.9	1242.1	1				IIIB
	1233	2315	HARV				1247	1440	2				I
			WEIS				1257.1	1257.4	1				IIIG
			WEIS				1322.5	1323.7	1				IIIG
			HARV				1344		3				IIIG
			SGMR				1344.1	1344.5	2				V
			WEIS				1344.2	1346.7	3				IIIG
			HARV				1415	1422	2				IIIG
			WEIS				1416.7	1417.0	2				U
			WEIS				1438.6	1440.4	1				IIIG
			HARV				1440	1442	2				IIIG
			HARV				1440	2315	1				IN
			SGMR				1441.0	1442.8	2				V
			HARV				1454	1908	2				IIIN
	1514	1824	WEIS				1526.9	1527.3	1				IIIG
			HARV				1542		3				IIIG
			WEIS				1602.7	1602.9	1				IIIG
			HARV				1621	1628	2				IIIGG
			WEIS				1622.0	1622.7	2				IIIG,DCIM
			WEIS				1633.8	1643.8	1				IIIG
			WEIS				1703.3	1706.7	3				IIIGG/V
			SGMR				1703.7	1713.0	2				CONT
			PALE				1703.7	1706.3	2				V
			HARV				1704	1706	3				IIIG,V
			WEIS				1742.8	1744.1	2				IIIG
			HARV				1743	1744	2				IIIG
			SGMR				1743.0	1744.4	1				V
			PALE				1743.0	1734.5	2				III
			HARV				2009	2012	3				IIIGG
	2038	2400	CULG				2052	2400					IS,W,C
			CULG				2054	2400					IIIN,W
			CULG				2313	2319					DC,W

The symbols used under the column heading SPECTRAL TYPE have the following definitions:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES

(Neutron Monitors)

JULY 1981

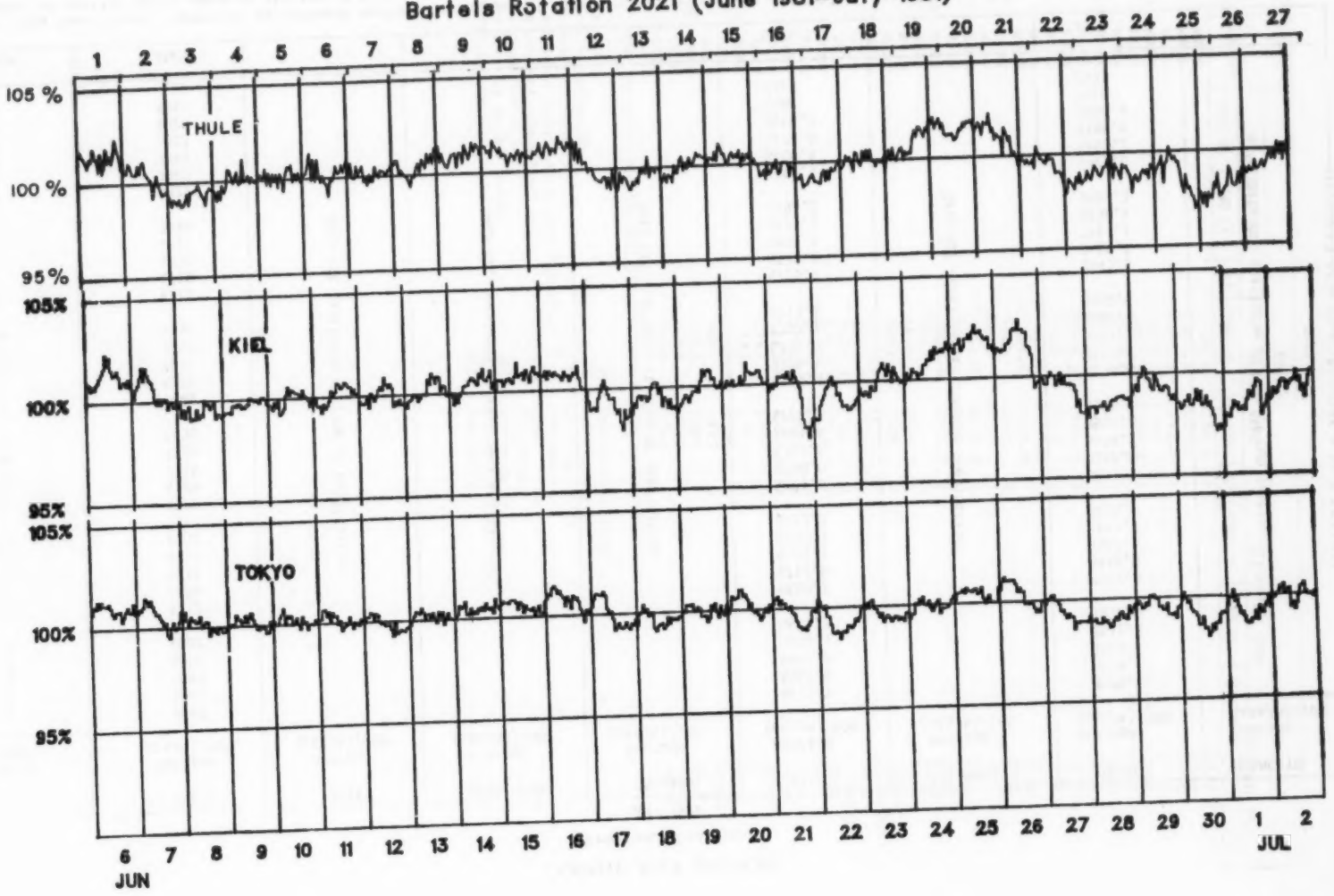
July 1981	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	CALGARY Average (cts/h)/100	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100
1	3960				5513.3		3488.6	
2	4017				5562.8		3514.1	
3	4043				5597.2		3519.0	
4	4055				5608.3		3531.8	
5	4082				5651.2		3537.0	
6	4112				5690.3		3544.8	
7	4128				5712.8		3556.5	
8	4115				5725.3		3554.5	
9	4112				5728.3		3557.4	
10	4123				5733.8		3558.1	
11	4122				5724.6		3556.9	
12	4129				5750.0		3562.8	
13	4135				5751.6		3554.1	
14	4138				5741.6		3552.8	
15	4139				5748.0		3555.3	
16	4144				5739.6		3556.8	
17	4123				5725.5		3558.6	
18	4091				5701.3		3551.5	
19	4103				5707.1		3552.4	
20	4112				5713.5		3550.5	
21	4116				5725.9		3543.5	
22	4110				5739.2		3550.4	
23	4046				5631.2		3517.4	
24	4015				5574.3		3490.1	
25	3948				5496.2		3489.3	
26	3822				5294.9		3425.0	
27	3900				5400.4		3463.2	
28	3965				5476.4		3486.4	
29	3993				5516.3		3500.9	
30	4025				5585		3515	
31	4041				5623		3533	
MEAN	4063				5641.6		3529.9	

Data not available at time of publication.

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

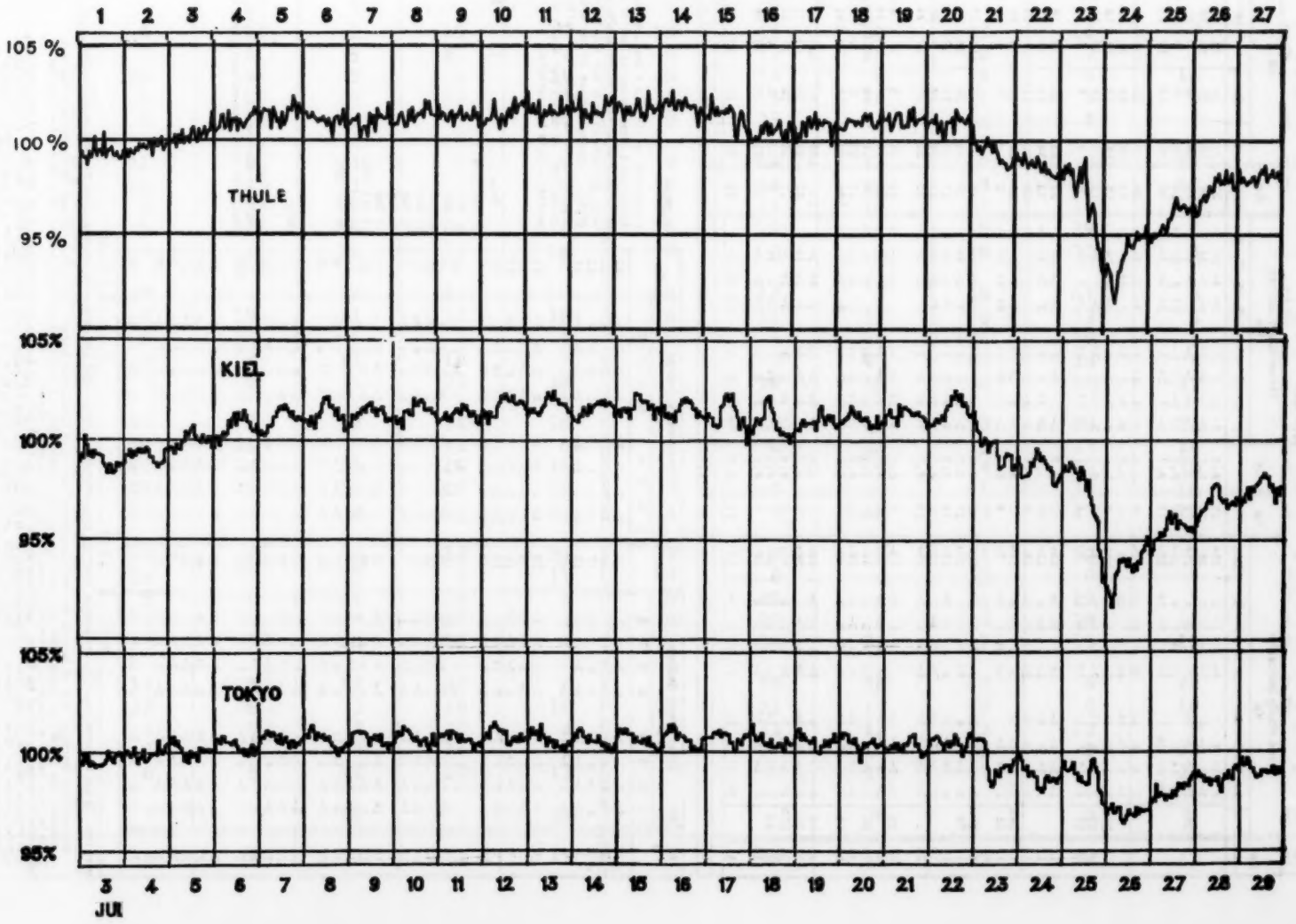
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2021 (June 1981–July 1981)



COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 2022 (July 1981)



GEOMAGNETIC ACTIVITY INDICES

JULY 1981

Day	Three-Hourly Indices Kp									Ap	Cp	Three-Hourly Indices Km								Am	aa				
		1	2	3	4	5	6	7	8	Sum			1	2	3	4	5	6	7	8		N	S	M	
1		4	3-	3	3	4-	3+	3-	3	25+	17	0.9	4-	2+	3	3-	3+	3-	2+	3-	27	31	15	24	22	
2		3-	3	5-	4	5-	3-	3+	3	28	22	1.1	2+	3+	4+	3+	4-	2+	3+	3	36	36	25	33	28	
3	Q0A	1+	1+	2-	2-	2-	1	3-	4	15+	9	0.5	2-	1+	2-	2-	1	1-	3-	4-	15	18	8	8	18	K
4		2+	1+	1	1	2-	2+	2	4	16-	9	0.5	2+	2-	1-	1-	1+	2	2-	3+	14	19	7	8	19	K
5		2+	2+	2+	3	3-	3+	3+	2+	22-	12	0.7	2+	2	2+	3	2+	3-	3-	2+	20	29	13	19	23	
6		3	3	4	4-	3+	4-	4-	2+	27-	19	1.0	3-	3	4-	3	3-	3	3-	2+	28	30	21	28	23	
7		3-	3	3-	2+	4-	3+	3	2+	23	14	0.8	2+	3-	3	3-	3	2+	2	2-	21	30	20	21	30	
8	Q8A	3	3-	2+	3-	2-	1-	2-	1-	15+	8	0.4	3-	3-	2	3-	2-	0+	1+	1	15	16	12	18	10	
9	Q5	2	2-	2	1+	2-	2-	2-	2	14	6	0.3	2	2-	2	2-	2-	1	2-	2-	12	15	10	13	11	CC
10	Q2	1	1+	1	1-	1-	1	2-	1+	9-	4	0.1	1-	1+	1	0+	1-	1	1+	1	6	9	5	5	10	CK
11		1-	2-	4-	4-	2+	3	3	2+	20+	13	0.7	1-	2-	4-	3	3-	3-	3-	2	22	23	16	21	18	
12		2+	3+	3	4-	4-	4	4-	4	28-	20	1.0	2+	3+	3	3-	3	3+	3+	4-	33	34	34	26	43	
13		3	2-	2-	2+	2-	2+	3-	3-	18	9	0.5	3-	2-	2-	2-	2-	2-	3-	2+	16	22	11	11	21	
14	Q6A	3-	2-	1-	1+	2	3	1+	1	14-	7	0.4	3-	2	1+	1+	2	3-	1-	1	13	18	11	13	16	
15	Q1	1	1+	1-	1	1-	0+	1	1-	7-	4	0.1	1-	1+	0+	1	0+	0+	1-	1-	5	9	3	6	6	CK
16	Q9A	2+	2	2-	2+	1	3-	2	2+	16+	8	0.4	2	2+	2	2+	1+	2+	1+	2-	14	20	15	17	17	
17	D4	2	2-	4-	4	5-	3-	5-	6	29+	29	1.3	2	2-	4	4	4	2+	4+	5	46	44	56	30	70	
18		4	2+	2-	2	2	1	2+	2+	18-	10	0.5	4-	3-	2	2	2-	1-	2-	2	17	20	11	17	14	
19		2	2-	2-	1+	3+	2+	3-	2	17	9	0.5	2-	2	1	1	2+	2-	2+	1+	12	20	10	9	20	
20		2+	2+	1+	3+	4+	2+	2-	2-	19+	12	0.7	2+	3-	2-	3	4	2	2-	2-	22	22	23	21	24	
21	Q4	3-	2-	2-	2-	1	1+	1	2-	13-	6	0.3	3-	1+	2-	2-	1	1-	1-	1+	10	15	5	12	8	C
22		2+	3	2-	4-	5-	5-	4-	5-	28+	24	1.2	2	3-	1+	3+	3	3	3-	4	28	40	27	23	44	
23	D3	3	2-	4	5	6-	5+	5	4	34-	37	1.4	3-	2-	4	4+	5	5-	4-	3+	50	51	60	41	70	
24		2-	1+	2-	2-	3	3	3-	5-	20-	13	0.7	2-	1+	2-	1+	2	2+	2-	4-	17	23	7	9	22	
25	D1	4+	6-	7-	4+	8+	8+	8-	8-	53	134	1.9	3+	5	6	4+	8	7+	7-	7-	190	142	118	70	191	
26	D2	8	7-	6	5	6-	6-	4	3+	44+	78	1.8	7+	6+	5+	4+	4+	4+	3+	3	107	104	57	106	55	
27	D5	4	5-	5	4+	3+	3-	1+	3	28+	24	1.2	4	4	5-	4+	3	2+	1+	3	42	39	39	53	25	
28	Q7A	2	3-	2+	2	2+	1+	2-	2	16+	8	0.4	2+	3-	3	3-	2+	1+	2-	2-	17	16	20	18	17	
29	Q3	2	2-	1-	1-	1	1+	1-	2+	10+	5	0.2	3-	2-	0+	1-	0+	1	0+	2-	8	12	5	8	8	CC
30		2	1+	2	3-	3-	3-	3-	2	18	9	0.5	2-	2-	3	3-	2+	3-	2+	2	19	21	20	15	26	
31		2+	2	3+	2+	2	3-	3	3+	21	12	0.7	2+	2	3	2+	1+	2+	3-	3	21	21	23	23	21	
									Mean		19	0.73									29.1	30.6	22.8	26.7	

Day	Three-Hourly Indices Kn								An	Three-Hourly Indices Ks								As
	1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	
1	4-	3-	3	3	4-	3-	3-	3	31	4-	2	3-	2+	3-	2+	2-	2	22
2	2+	3	4	4	4-	3-	4-	3	38	2+	4-	5-	3-	3	2-	3	3	34
3	2	1+	2	2	1+	1	3-	3+	17	1+	1-	1	1+	1-	0+	2+	4	13
4	2+	2-	1-	1+	2-	3-	2	4	18	2+	2	1-	0+	1-	1+	2-	3-	11
5	2+	2	3-	3+	3-	3	3	3-	24	2	2	2	3-	2-	2-	2	2-	15
6	3-	3	4	3+	3	3	3	3-	33	2+	3	3+	3-	2	3-	2+	2-	24
7	2+	3	3	3-	3+	3	3-	2+	25	2	3-	3	3-	3-	2-	1+	1	17
8	3	3-	2+	3	2	1-	2-	1+	18	2+	3-	2-	3-	1+	0	1-	0+	12
9	2-	2-	2	2-	2	1+	2-	2	13	2+	2-	2	1+	1+	0+	1+	1	10
10	1	1+	1	1-	1-	2-	2-	1+	8	1-	1	1-	0+	0+	0+	1	1-	4
11	1	2-	4	3+	3-	3	3-	3-	27	0	1+	3+	3	3-	2+	2+	1+	18
12	2+	4-	3-	3	3+	4-	3+	4-	35	2+	3+	3	3-	3-	3	3	4	31
13	3-	2	2-	2	2	2+	3-	3-	18	3	1+	2	1+	1	1+	2+	2-	14
14	2+	2	1+	2-	2+	3	1+	2-	15	3-	2-	1	1-	2-	2+	0	0+	11
15	1+	2-	1-	1+	1-	1-	1	1	7	0+	1+	0	1-	0	0	0	0+	2
16	2+	2+	2+	2+	1+	3-	2+	2+	18	2	2+	2-	3-	1-	1+	0+	1-	11
17	2	2-	4	4	4	3-	4	5	46	2+	1+	4	4	4-	2+	5-	5	46
18	3+	3-	2	2+	2	1+	2	2+	19	4	3-	2	2-	1+	0	1	1+	16
19	2-	3-	1+	1+	3	2	3-	2	17	2-	1+	1-	1-	2-	1	2	1-	8
20	2+	3-	2	4-	4+	2+	2+	2+	28	2+	2+	1+	2+	3+	1+	1-	1+	16
21	3-	2-	2	2	2-	1+	1	2	13	3-	1+	2-	1	0	0	0	1-	7
22	2+	3-	1+	4-	4-	3+	3	4+	35	2-	3-	1	3+	2+	3-	2	3+	22
23	3-	2-	4	5-	5	5-	4-	3	51	3-	1+	4	4	5	5	3+	3+	50
24	2	1+	2+	2-	3-	3-	2+	4-	21	1+	1	1+	1	1+	1+	1+	4-	13
25	3+	5-	6	5-	8	8	7-	7-	195	3+	5+	6	4	8	7	6+	7	186
26	8-	6+	6-	5-	5-	5-	3+	3+	121	7	6+	5	4	4	4+	3	3	94
27	4-	4+	5	4+	3	2+	1+	3+	46	4+	4-	4+	4+	3	2	1	2+	38
28	2+	3-	3	3-	3-	2-	1+	2	20	2+	2+	3-	2+	2-	1	2-	1+	15
29	2	1+	1-	1	1	2-	1-	2	9	3-	2	0	0	0	0	0	1+	7
30	2-	2-	3	3-	3-	3	3-	2+	22	1+	1+	3	3-	2+	2	2	2-	16
31	2+	2	3	3-	2-	3-	3	3+	24	3-	2+	3	2	1	1+	3-	3-	18
								Mean	32.6									25.8

ERRATA:

Conversion in 1979 to a new computer with a different word size caused values of indices aa to be truncated if they exceeded 99; the machine read and printed only the two least significant digits. Correct values of the affected indices are listed below. Both half-daily values are given, too, to make clear which of the two entries should be corrected.

Date	N	S	M	
21 Feb 1979			66	102
10 Mar			54	101
25 Apr	109		27	148
26 Apr			103	15
13 Aug			53	108
20 Aug			33	100
29 Aug			59	111
18 Sep			100	63
25 Jul 1980			13	100
19 Dec	118	123	63	178
06 Feb 1981			24	116

NOTE:

aa indices are provisional from 1 January 1981 until further notice, in connection with the change of the Southern Hemisphere observatory.

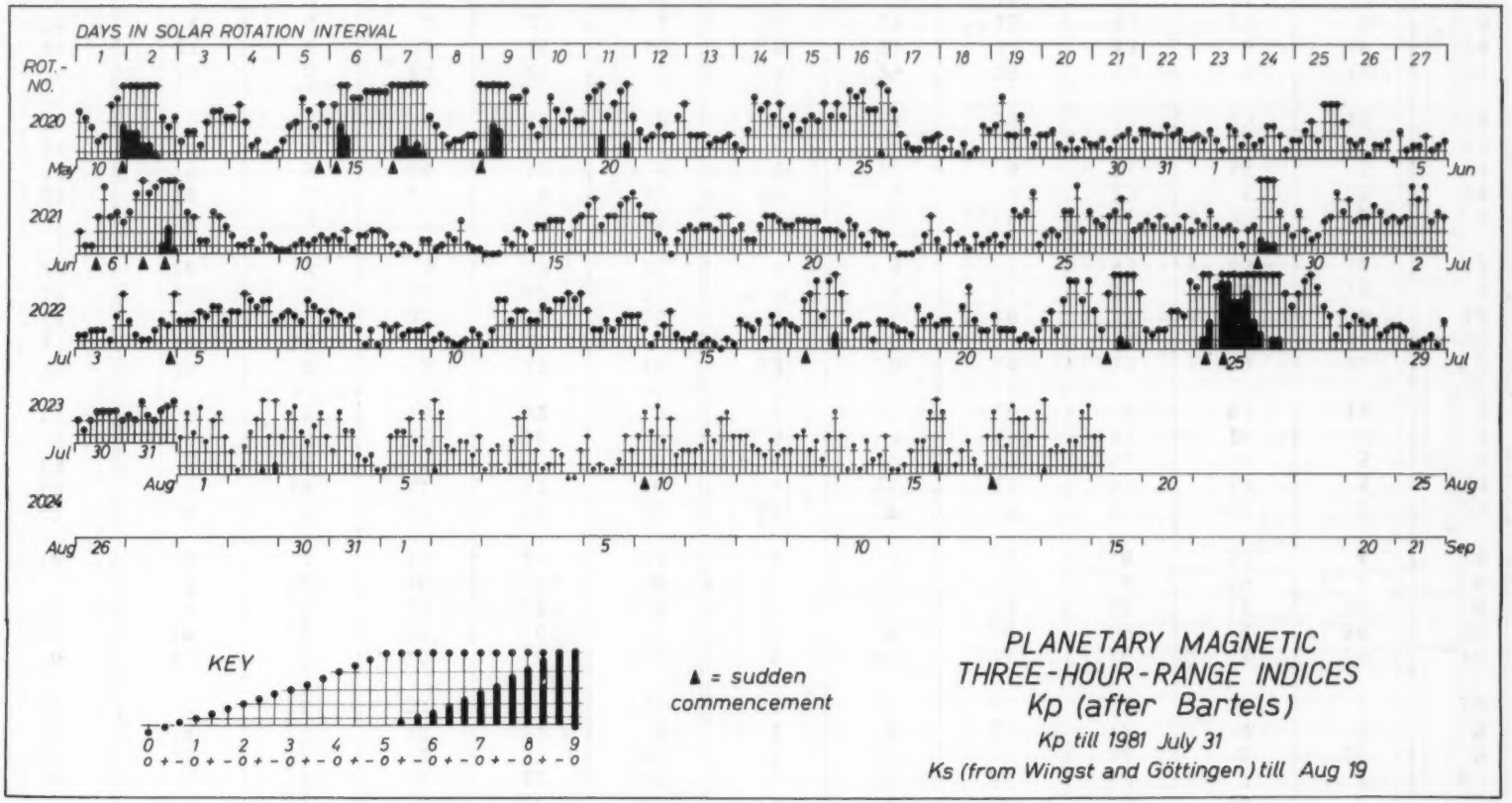
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp≥30 or two Kp values≥3-"). An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Km, Kn, Ks, daily mean values Am, An, As (unit 1nT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

DAILY AVERAGE INDICES Ap

	1980					1981						
DAY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	4	7	2	16	19	13	14	28	23	16	7	17
2	7	4	5	11	7	9	22	25	10	7	7	22
3	20	12	5	5	21	9	13	8	14	5	16	9
4	8	12	26	12	8	14	9	12	11	4	5	9
5	4	10	22	5	4	9	25	81	4	4	6	12
6	21	9	14	6	4	9	48	11	10	5	14	19
7	10	10	12	6	6	6	20	20	9	5	50	14
8	4	8	12	6	9	11	14	10	11	11	16	8
9	9	12	16	9	10	6	22	4	8	39	4	6
10	9	4	22	14	10	9	3	8	8	32	4	4
11	8	6	40	24	16	19	10	7	39	61	6	13
12	8	18	11	12	16	4	11	11	96	13	4	20
13	6	16	5	6	6	6	7	28	121	10	5	9
14	6	8	11	10	8	6	3	45	27	18	4	7
15	5	8	15	22	10	7	10	19	8	54	11	4
16	26	8	3	16	16	12	10	14	13	59	21	8
17	10	14	5	11	5	8	6	18	19	13	10	29
18	18	4	21	16	15	4	6	19	14	57	10	10
19	28	6	11	17	79	3	6	10	45	18	10	9
20	10	7	4	17	21	4	9	9	53	43	10	12
21	8	2	7	13	26	2	5	8	41	12	7	6
22	10	8	23	8	11	9	6	4	33	6	5	24
23	5	5	44	10	5	8	12	4	31	19	5	37
24	4	4	14	12	3	8	20	4	22	18	13	13
25	5	7	24	16	8	7	24	36	19	33	15	134
26	12	5	13	21	6	8	29	28	62	8	14	78
27	22	6	3	19	10	8	21	14	43	6	10	24
28	4	6	2	23	4	16	11	12	13	12	9	8
29	4	9	3	16	9	15		18	19	6	33	5
30	6	5	10	24	13	7		16	7	6	14	9
31	7		30		15	22		26		8		12
MEAN	10	8	14	13	13	9	14	18	23	20	12	19

GEOMAGNETIC ACTIVITY INDICES



PRINCIPAL MAGNETIC STORMS

JULY 1981

OBS. 3 letter code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY (3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
NEW	55.1N	01	21--	..	..	..	..	02(3,4)	5	36	105	169	04	06
COL	64.6N	02	03--	..	..	..	..	02(3,4)	7	165	1280	870	02	23
NEW	55.1N	05	07--	..	..	..	..	06(3)	5	25	79	117	08	14
COL	64.6N	06	01--	..	..	..	..	06(3)	6	118	800	480	06	23
NEW	55.1N	17	0801	SC	3	48	3	17(8)	5	27	162	188	18	13
WIT	54.2N	17	0802	SC	2	10		17(5,8)	5	32	136	53	18	01
FRD	49.6N	17	0803	SC	1	25	- 3	17(8)	6	24	150	107	--	--
HON	21.1N	17	0803	SC	--	17	8	17(7)	4	10	82	48	18	15
JAI	17.3N	17	0801	SC	- 1.1	26	- 9		-	12	124	41	18	01
UJJ	13.5N	17	0801	SC	- .6	28	- 6		-	10	137	34	18	01
ABG	09.5N	17	0801	SC	- .2	22	-13	17(4)	6	11	131	44	18	01
ANN	01.5N	17	0801	SC	- 1.8	53	16		-	9	183	67	18	01
HUA	00.6S	17	0802	SC	1	11	5	17(5)	5	8	294	52	18	04
TRD	01.1S	17	0801	SC	..	73	71		-	8	243	118	18	01
PMG	18.6S	17	0802	SC	.1	16	14	17(8)	5	10	70	50	18	15
HER	33.7S	17	0802	SC*	- 8	19	10	17(7,8)	5	30	136	75	18	03
SIT	60.0N	22	10--	..	..	..	..	23(5)	-	--	--	--	24	01
HUA	00.6S	22	1035	..	..	..	..	22(5,6)	5	6	189	33	22	24
COL	64.6N	23	05--	..	..	..	..	23(4,5,6)	6	177	1420	960	23	23
NEW	55.1N	23	0647	SC	2	35	3	23(4,5,6)	5	31	232	292	24	05
WIT	54.2N	23	0647	SC*	4 *	13 *		23(4,5,6,7,8)	5	19	150	140	23	23
HON	21.1N	23	0647	SC	--	14	7	23(6)	5	6	65	24	24	06
JAI	17.3N	23	0645	SC	- .7	26	- 6		-	9	193	60	23	22
UJJ	13.5N	23	0645	SC	- .4	29	- 7		-	7	212	52	23	22
ABG	09.5N	23	0645	SC	- .8	24	- 8	23(4,5)	6	9	215	49	23	22
GUA	04.0N	23	0647	SC	--	19	- 5	23(5)	5	--	140	20	23	19
ANN	01.5N	23	0645	SC	- 2.4	59	12		-	9	295	55	23	22
HUA	00.6S	23	0645	SC	1	14	5	23(6)	5	8	187	46	23	23
TRD	01.1S	23	0645	SC	.2	71	75		-	6	337	172	23	22
PMG	18.6S	23	0646	SC	.1	17	15	23(5,6)	5	6	130	50	24	00
HER	33.7S	23	0646	SC*	- 4	12	5	23(5,6)	5	17	170	89	23	24
COL	64.6N	24	21--	..	..	..	..	25(5)	9	442	4360	720	27	17
SIT	60.0N	24	22--	..	..	..	..	25(6)	8	--	--	--	27	03
GUA	04.0N	25	1323	SC	--	100	-23		-	--	--	--	26	18
GUA	04.0N	25	2303	SC	2	52	-15	25(5)	8	10	280	60	26	18
HON	21.1N	25	13--	SC	3	76	26		-	18	--	55	28	17
NEW	55.1N	25	0515	SC	4	39	--	26(1)	9	135	2288	134	29	05
WIT	54.2N	25	0515	SC	- 5	20		25(5)	9	75	952	514	26	18
FRD	49.6N	25	----	..	..	..	..	25(5) 26(1)	9	95	920	305	28	--
HON	21.1N	25	05--	SC	--	14	5	25(5)	7	6	85	18	25	13
JAI	17.3N	25	0515	SC	- .2	29	- 4		-	21	334	68	27	17
UJJ	13.5N	25	0515	SC	- .2	37	- 9		-	--	351	65	27	17
ABG	09.5N	25	0515	SC	- .5	32	- 7	25(5)	8	16	367	86	27	17
GUA	04.0N	25	0515	SC*	--	36	- 9		-	--	--	--	26	18
ANN	01.5N	25	0515	SC	- 1.2	70	16		-	14	484	153	27	17
HUA	00.6S	25	0515	SC	1	30	6	25(6,7)	8	28	935	118	26	22
TRD	01.1S	25	0515	SC	- .2	75	82		-	7	557	299	27	17
PMG	18.6S	25	0515	SC	- .2	20	17	25(5)	8	18	310	180	27	16
HER	33.7S	25	0514	SC	3	14	14	25(5,8)	8	56	277	305	27	12
GNA	43.2S	25	0515	SC*	4.3*	20	* 24	* 25(5,7)	7	45	330	290	27	15

REPORTS WERE RECEIVED FROM THE FOLLOWING OBSERVATORIES:

ALIBAG ANNAMALAINAGAR COLLEGE FREDERICKSBURG GNANGARA GUAM HERMANUS HONOLULU HUANCAYO
JAIPUR NEWPORT PORT MORESBY SITKA TRIVANDRUM UJJAIN WITTEVEEN

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

JULY 1981

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-Bulletin nr. 32h (pag. 106-116)
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

17 0802 A: COI FRD HUA MPO; B: SOD ESK WNG WIT HAD MMB KAK HTY BNG CZT KGL DUM; C: NGK BDV EBR KNY

23 0646 A: SOD ESK WNG DOU COI HUA MPO CZT KGL; B: WIT NGK HAD BDV MMB EBR KAK HTY BNG DUM; C: KNY

25 0514 A: DOU COI BNG HUA MPO; B: WNG WIT MMB KAK HTY KGL DUM; C: BDV EBR KNY CZT

25 1322 A: WNG WIT NGK HAD DOU BDV MMB EBR KAK HTY KNY MPO (si:A:HUA)

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

02 1301 - 1341 WNG (bp: B: MPO)

04 1550 - 1604 BNG HUA? (ssc: B: COI - bp: B: MPO)

07 1802 - 1810 HUA?

15 0355 - 0440 MMB KAK HTY KNY

15 0812 - 0842 WNG EBR KNY

16 0442 - 0606 MMB KAK KNY BNG (ssc: B: WNG; C: HAD BDV - b:B: HUA - bp:B: MPO)

16 0640 - 0700 KNY

16 1004 - 1038 WNG

16 1530 - 1555 SOD WNG NGK BDV

17 1215 - 1310 WNG

19 0418 - 0500 MMB KAK HTY KNY

19 0513 - 0630 MMB KAK KNY

20 1730 - 1740 HUA

21 0400 - 0500 MMB KAK HTY KNY

22 0834 - 0904 HTY

25 0359 - 0406 HAD (ssc: C: CZT)

26 1351 - 1406 MPO

26 2129 - 2150 KNY

27 0630 - 0655 HTY KNY

27 1724 - 1734 HUA

RADIO PROPAGATION QUALITY INDICES

JULY 1981

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	5.3	5.4	6.5	4.2	2.9
2	6.4	4.7	5.5	4.6	3.6
3	6.4	6.4	5.9	5.0	4.6
4	6.1	5.7	5.5	4.3	3.3
5	6.0	5.4	6.1	4.4	3.3
6	5.0	5.0	5.7	3.7	1.4
7	6.0	5.3	4.7	4.5	2.6
8	6.1	4.4	6.1	4.3	5.3
9	6.7	5.8	5.5	6.1	6.3
10	6.7	6.6	5.9	5.9	7.9
11	7.7	6.2	6.3	6.7	7.0
12	6.3	5.4	5.6	4.7	4.7
13	6.0	6.1	6.6	7.5	6.5
14	7.3	6.1	6.9	7.1	6.1
15	7.2	7.0	6.5	7.0	6.7
16	7.4	7.0	7.2	6.0	6.3
17	5.7	5.3	5.8	6.1	5.4
18	6.3	5.7	5.2	6.4	6.4
19	5.3	5.7	6.9	4.7	4.8
20	6.0	5.7	5.8	8.8	8.5
21	6.3	6.1	6.9	5.3	4.7
22	5.7	5.8	5.6	4.7	6.1
23	4.7	4.5	5.2	4.0	4.4
24	5.7	5.2	6.2	5.4	8.1
25	4.7	3.2	0.0	3.1	5.0
26	4.7	3.6	0.0	1.8	0.0
27	4.7	4.0	6.4	4.3	4.8
28	6.4	4.7	5.6	6.0	7.2
29	6.7	6.1	6.4	5.6	7.1
30	5.7	4.7	7.0	5.6	6.3
31	5.4	5.1	5.3	6.3	9.3
MEAN	6.0	5.4	5.6	5.3	5.4

CALCULATION OF QUALITY INDICES (Q)

From all 24 hourly field strength values and from all frequencies of the same circuit a median field strength value is calculated (FD). This daily value is compared with the average value (FA) of the preceeding 27 days (1 sun rotation).

$$Q = 6.0 + 20 \log(FD/FA)/3.0$$

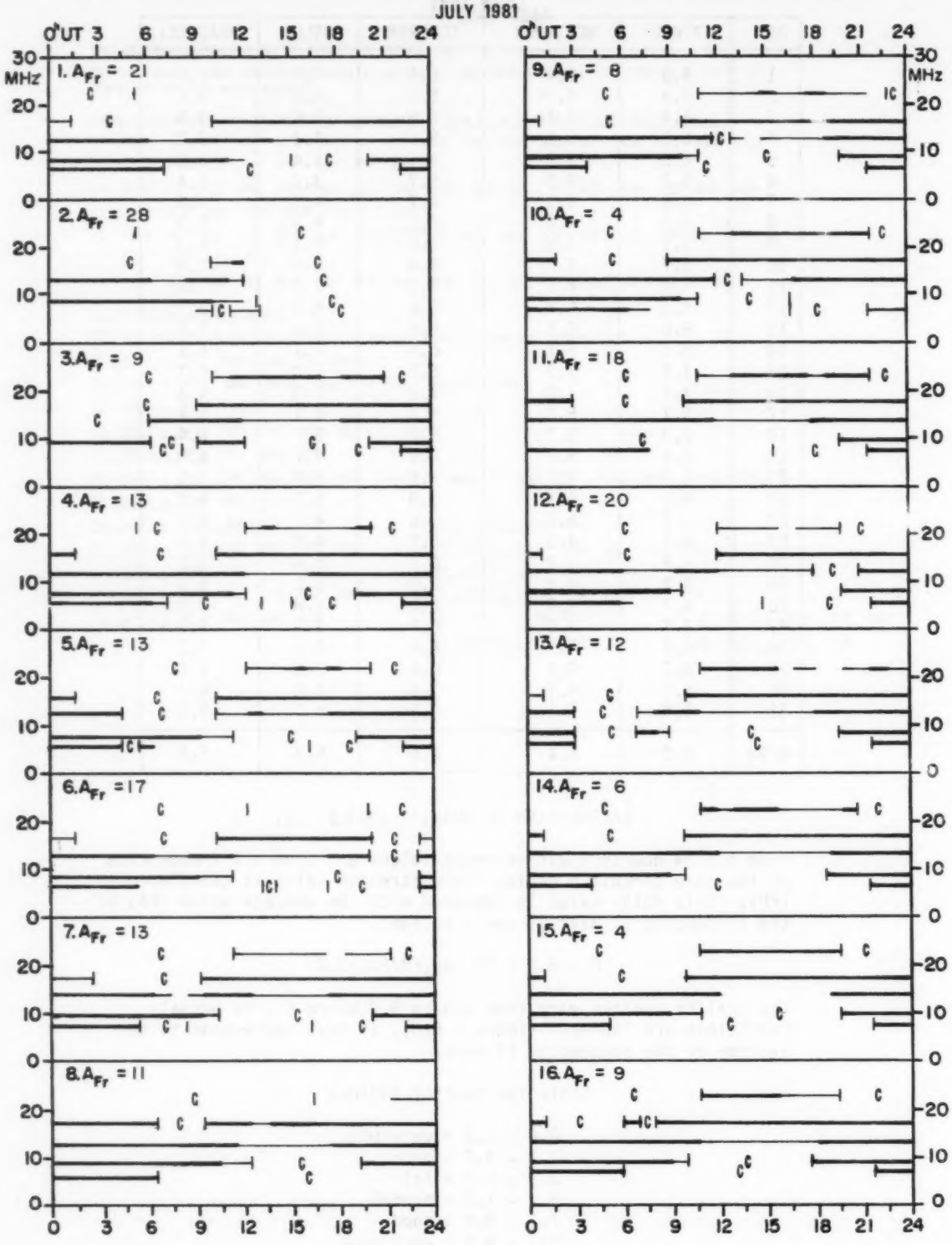
The quality indices vary from 0.0 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they correspond to the average of the preceeding 27 days.

Scale for Quality Indices

0.0 - 1.0 = very poor
1.1 - 3.0 = poor
3.1 - 5.0 = fair
5.1 - 7.0 - normal
7.1 - 9.0 = good
9.1 - 9.9 = very good

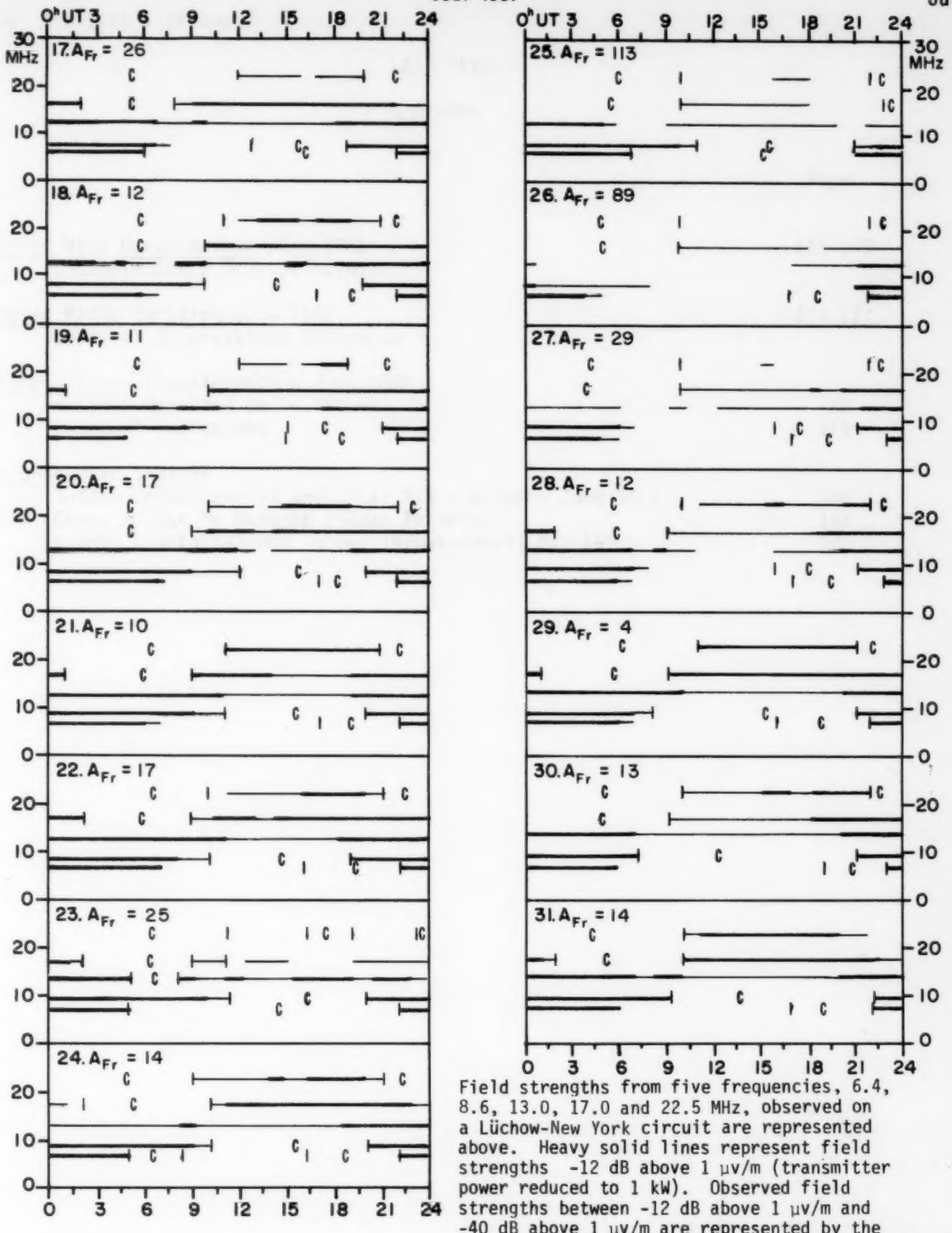
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JULY 1981



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

JULY 1981



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Lüchow-New York circuit are represented above. Heavy solid lines represent field strengths -12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line. Adapted from Observations by Deutsche Bundespost

SGD 445 Part I (Prompt)

LATE DATA

Contents

	Page
Solar Wind Measurements July 1981	170-173
Interplanetary Scintillations	
Solar Radio Emission June 1981	174-177
Spectral Observations Weissenau	
Cosmic Rays Climax/Huancayo June 1981	
Neutron Monitors Daily Values	178
Chart of Variations	179
Geomagnetic Indices	
Sudden Commencements and Solar Flare Effects June 1981	180
Chart of Dst by Bartels 27-day Rotation	181
Hourly Equatorial Dst Values (Provisional) May 1981	182

SOLAR WIND

Interplanetary Scintillations

JULY 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
810701	182	0	354	45	344	48	2	3C237	52	-5	0.79	-37	-3.97	1710.16
	182	2	402	40	367	61	2	3C273	88	2	1.03	-17	-1.14	1710.08
	182	4	484	62	378	16	2	3C298	109	6	1.13	-13	-0.51	1710.09
	182	18	633	93	677	24	2	3C147	29	59	0.48	32	0.85	1710.10
	182	19	440	9	435	9	3	3C144	16	3	0.28	75	2.59	1709.99
	182	20	331	9	348	19	3	3C161	29	-56	0.48	18	-1.61	1710.09
	182	22	290	16	397	162	2	3C216	36	34	0.59	-47	-6.26	1710.24
810702	183	1	588	*	592	*	2	3C273	87	3	1.03	-16	-1.19	1710.17
	183	13	384	*	375	*	2	3C459	109	7	1.13	15	1.75	1710.02
	183	15	501	*	501	*	2	3C48	68	14	0.93	21	1.29	1710.09
	183	16	442	13	451	13	3	3C144-	17	3	0.29	73	2.53	1710.02
	183	18	377	24	356	29	2	3C147	30	58	0.50	34	0.06	1710.09
	183	20	401	65	464	17	3	3C161	29	-55	0.48	21	-0.85	1710.14
	183	21	483	26	476	18	2	3C144+	17	3	0.29	74	2.81	1710.03
	183	22	316	51	320	50	2	3C216	35	35	0.57	-47	-6.12	1710.29
	183	23	463	34	460	22	2	3C222	45	-12	0.71	-43	-4.47	1710.30
810703	184	0	395	50	370	21	2	3C237	50	-5	0.77	-38	-4.03	1710.26
	184	1	613	101	575	92	2	3C273	86	3	1.02	-18	-1.29	1710.22
	184	15	582	28	473	15	3	3C48	68	13	0.93	19	1.20	1710.14
	184	16	374	14	372	14	3	3C144-	18	3	0.31	73	2.07	1710.05
	184	18	321	26	281	12	2	3C147	30	56	0.50	35	-0.27	1710.11
	184	19	377	8	383	8	4	3C144	18	3	0.31	72	2.03	1710.05
	184	19	282	28	355	35	2	3C161	29	-55	0.48	22	-1.75	1710.13
810704	185	15	398	*	388	*	2	3C48	69	13	0.93	19	1.08	1710.13
	185	18	377	13	383	13	3	3C144	19	3	0.33	72	2.11	1710.09
810705	186	0	434	41	387	17	2	3C237	48	-5	0.74	-41	-4.21	1710.35
	186	1	431	52	417	32	2	3C273	84	3	1.01	-16	-1.21	1710.24
	186	4	386	22	393	64	2	3C298	106	7	1.12	-14	-0.50	1710.20
	186	21	327	*	321	*	2	3C144+	20	4	0.34	71	1.58	1710.12
	186	23	292	*	300	*	2	3C222	42	-13	0.67	-46	-5.61	1710.36
810706	187	0	328	*	315	*	2	3C237	47	-5	0.73	-40	-4.61	1710.35
	187	1	357	*	325	*	2	3C273	83	3	1.01	-17	-1.27	1710.25
	187	2	481	*	477	*	2	3C283	101	-2	1.10	-14	-0.69	1710.28
	187	18	517	*	588	*	2	3C147	32	53	0.53	37	1.10	1710.25
	187	23	340	*	318	*	2	3C222	41	-13	0.66	-47	-5.47	1710.42
810707	188	0	397	*	361	*	2	3C237	46	-5	0.72	-42	-4.54	1710.42
	188	16	438	*	449	*	2	3C144-	22	4	0.37	69	2.57	1710.20
	188	19	429	*	429	*	2	3C144	22	4	0.37	68	2.41	1710.21
	188	22	399	*	395	*	2	3C216	32	41	0.53	-48	-5.88	1710.51
810708	189	13	377	50	313	36	2	3C459	115	7	1.16	14	1.81	1710.24
	189	14	415	12	430	13	3	3C48	73	12	0.96	17	1.05	1710.28
	189	16	407	12	405	12	3	3C144-	23	4	0.39	68	2.32	1710.24
	189	17	488	107	474	93	3	3C147	33	51	0.54	39	1.19	1710.31
	189	18	412	19	430	37	3	3C144	23	4	0.39	68	2.38	1710.24
	189	20	421	19	402	19	3	3C161	30	-50	0.50	31	0.13	1710.33
	189	21	311	85	321	122	3	3C196	29	59	0.48	-36	-5.83	1710.49
	189	21	363	13	354	12	3	3C144+	23	4	0.39	68	2.00	1710.24
	189	22	433	52	358	49	2	3C216	32	42	0.53	-50	-5.81	1710.55
	189	23	327	19	350	18	3	3C237	45	-6	0.71	-45	-5.08	1710.48
810709	190	12	272	63	234	51	2	3C459	115	7	1.16	14	2.10	1710.19
	190	14	365	12	335	10	4	3C48	74	12	0.96	16	0.96	1710.30
	190	16	346	10	389	11	3	3C144-	24	4	0.41	67	1.82	1710.26
	190	17	619	27	517	85	3	3C147	33	50	0.54	41	1.69	1710.36
	190	18	401	11	407	12	4	3C144	24	4	0.41	67	2.25	1710.28
	190	19	394	13	429	16	3	3C161	31	-49	0.52	31	0.05	1710.35
	190	20	361	58	386	29	2	3C196	28	60	0.47	-33	-5.31	1710.54
	190	21	395	25	389	21	3	3C144+	24	4	0.41	66	2.18	1710.28
	190	22	287	17	320	27	3	3C222	38	-14	0.62	-49	-6.26	1710.53
810710	191	0	338	12	362	29	3	3C237	44	-6	0.69	-46	-5.20	1710.53
	191	1	263	11	442	196	2	3C273	80	4	0.99	-17	-1.39	1710.33
	191	4	364	35	324	8	3	3C298	101	7	1.10	-14	-0.57	1710.38
	191	14	286	15	389	21	2	3C48	75	12	0.97	15	0.92	1710.29

SOLAR WIND
Interplanetary Scintillations
JULY 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	191	16	283	14	317	15	3	3C144-	25	4	0.42	65	1.08	1710.28
	191	18	308	36	337	39	3	3C144	25	4	0.42	65	1.38	1710.29
	191	19	356	23	405	17	3	3C161	31	-48	0.52	33	-0.07	1710.38
	191	21	264	15	297	17	3	3C144+	25	4	0.42	65	0.83	1710.28
	191	22	203	21	204	41	2	3C222	37	-14	0.60	-48	-7.35	1710.51
	191	23	395	16	402	63	3	3C237	43	-6	0.68	-47	-5.09	1710.59
810711	192	1	368	15	367	20	3	3C273	79	4	0.99	-17	-1.42	1710.44
	192	2	340	20	337	18	4	3C283	96	-2	1.07	-15	-0.78	1710.40
	192	4	402	13	405	17	4	3C298	101	7	1.10	-15	-0.69	1710.44
	192	16	277	10	286	10	3	3C144-	25	4	0.42	66	1.09	1710.31
	192	17	408	23	443	50	2	3C147	34	48	0.56	41	1.05	1710.40
	192	18	292	10	306	10	3	3C144	26	4	0.44	65	1.28	1710.32
	192	19	305	10	316	18	4	3C161	31	-47	0.52	34	-0.42	1710.39
810712	193	2	389	31	425	13	3	3C283	95	-1	1.07	-15	-0.84	1710.47
	193	3	449	14	467	63	3	3C298	100	8	1.09	-14	-0.73	1710.49
	193	12	308	80	526	140	2	3C459	118	7	1.17	13	1.99	1710.34
	193	14	436	28	439	15	3	3C48	76	12	0.97	17	1.11	1710.44
	193	16	378	12	379	12	4	3C144-	26	5	0.44	65	2.12	1710.38
	193	17	777	59	753	28	3	3C147	35	47	0.57	41	2.08	1710.47
	193	18	362	10	383	10	4	3C144	26	5	0.44	65	1.98	1710.38
	193	19	446	16	437	51	3	3C161	32	-46	0.53	34	0.60	1710.46
810713	194	12	678	113	458	40	2	3C459	119	7	1.18	13	1.42	1710.51
	194	14	244	7	324	10	3	3C48	77	12	0.98	16	1.01	1710.35
	194	16	369	15	403	16	3	3C144-	27	5	0.45	64	2.08	1710.41
	194	17	302	*	560	*	2	3C147	35	46	0.57	42	0.51	1710.43
	194	19	413	*	383	*	2	3C144	27	5	0.45	64	2.31	1710.43
	194	19	494	*	432	*	2	3C161	32	-44	0.53	36	0.93	1710.51
	194	21	463	*	457	*	2	3C144+	28	5	0.47	64	2.65	1710.44
810714	195	2	443	44	509	26	2	3C283	93	-1	1.06	-14	-0.87	1710.57
	195	14	372	11	425	13	2	3C48	78	12	0.98	17	1.13	1710.48
	195	16	417	17	431	17	3	3C144-	28	5	0.47	62	2.28	1710.46
	195	17	586	47	584	39	2	3C147	36	45	0.59	42	1.83	1710.53
	195	18	410	15	427	16	4	3C144	28	5	0.47	62	2.28	1710.46
	195	23	268	64	272	25	2	3C237	39	-6	0.63	-50	-6.41	1710.70
810715	196	1	315	21	318	32	2	3C273	75	4	0.97	-18	-1.59	1710.56
	196	14	362	14	415	79	3	3C48	79	12	0.99	15	1.07	1710.51
	196	16	370	23	397	16	4	3C144-	29	5	0.48	61	2.02	1710.49
	196	17	498	66	520	120	2	3C147	37	44	0.60	41	1.57	1710.55
	196	18	322	10	398	13	4	3C144	29	5	0.48	63	1.72	1710.48
	196	19	426	12	407	21	4	3C161	33	-42	0.54	37	0.78	1710.56
810716	197	2	450	25	388	35	2	3C283	91	-1	1.05	-15	-0.95	1710.65
	197	4	379	8	392	7	4	3C298	96	8	1.07	-15	-0.82	1710.61
	197	14	338	21	343	10	3	3C48	80	12	0.99	16	1.16	1710.54
	197	16	313	10	308	10	4	3C144-	30	5	0.50	61	1.63	1710.51
	197	17	495	20	506	21	2	3C147	37	43	0.60	42	1.62	1710.59
	197	18	324	16	322	16	4	3C144	30	5	0.50	62	1.76	1710.51
	197	19	261	59	352	76	2	3C161	33	-41	0.54	37	-0.46	1710.54
	197	21	481	101	463	62	2	3C144+	30	5	0.50	60	2.57	1710.55
	197	22	444	79	782	45	2	3C222	32	-17	0.53	-55	-6.16	1710.86
	197	23	424	23	446	22	2	3C237	37	-7	0.60	-51	-5.68	1710.84
810717	198	0	433	39	405	64	2	3C273	73	4	0.96	-17	-1.49	1710.69
	198	1	400	14	365	12	3	3C283	90	-1	1.04	-15	-0.94	1710.66
	198	4	335	8	392	9	3	3C298	95	8	1.07	-16	-0.86	1710.63
	198	14	414	8	398	8	4	3C48	81	12	1.00	16	1.19	1710.61
	198	15	291	13	323	15	3	3C144-	31	5	0.52	59	1.33	1710.53
	198	17	464	39	440	19	3	3C147	38	42	0.62	42	1.60	1710.62
	198	18	305	21	310	22	4	3C144	31	5	0.52	60	1.55	1710.54
	198	19	377	27	353	39	3	3C161	34	-40	0.56	38	0.67	1710.62
	198	20	385	38	259	25	2	3C196	28	67	0.47	-8	-3.24	1710.77
	198	20	319	14	308	14	3	3C144+	31	5	0.52	60	1.67	1710.55
	198	21	255	23	276	94	2	3C216	28	55	0.47	-47	-7.45	1710.83
	198	23	378	16	328	12	2	3C237	36	-7	0.59	-52	-5.98	1710.87
810718	199	3	318	29	227	12	2	3C298	94	8	1.06	-16	-0.85	1710.65

SOLAR WIND
Interplanetary Scintillations
JULY 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	199	14	430	11	399	20	4	3C48	82	12	1.00	16	1.20	1710.65
	199	15	338	10	343	10	4	3C144-	32	5	0.53	59	1.84	1710.59
	199	17	463	16	370	13	3	3C147	39	41	0.63	41	1.59	1710.65
	199	18	393	15	396	15	4	3C144	32	5	0.53	58	2.16	1710.61
B10719	200	0	279	77	312	55	2	3C273	71	5	0.95	-18	-1.74	1710.69
	200	1	373	88	359	13	2	3C283	89	-1	1.04	-15	-0.97	1710.72
	200	14	378	15	391	19	2	3C48	83	12	1.01	16	1.21	1710.66
	200	15	362	27	372	14	4	3C144-	33	5	0.54	59	2.06	1710.63
	200	17	411	17	371	16	2	3C147	39	40	0.63	41	1.38	1710.68
	200	18	343	12	340	14	3	3C144	33	5	0.54	59	1.92	1710.63
	200	20	353	18	362	19	3	3C144+	33	5	0.54	59	2.00	1710.63
	200	22	324	104	267	66	2	3C222	29	-19	0.48	-56	-7.26	1710.96
B10720	201	0	280	71	295	47	2	3C273	70	5	0.94	-19	-1.87	1710.73
	201	1	331	24	355	14	2	3C283	88	-1	1.03	-15	-1.00	1710.74
	201	3	381	102	319	81	2	3C298	92	9	1.05	-16	-1.02	1710.77
	201	14	390	19	443	22	2	3C48	83	12	1.01	17	1.29	1710.71
	201	15	332	17	336	18	3	3C144-	34	5	0.56	57	1.82	1710.66
	201	17	364	12	369	12	3	3C147	40	39	0.64	40	1.18	1710.70
	201	18	326	10	337	10	4	3C144	34	5	0.56	56	1.72	1710.66
	201	19	343	13	367	28	4	3C161	35	-37	0.57	38	0.56	1710.71
	201	20	350	18	316	17	3	3C144+	34	5	0.56	57	1.96	1710.67
B10721	202	1	329	10	359	37	3	3C283	87	-1	1.03	-15	-1.03	1710.77
	202	3	282	9	250	23	2	3C298	92	9	1.05	-15	-0.84	1710.74
	202	14	398	65	381	66	2	3C48	84	12	1.01	16	1.23	1710.75
	202	15	486	18	525	19	3	3C144-	35	5	0.57	56	2.54	1710.73
	202	17	415	38	448	53	2	3C147	41	38	0.66	40	1.43	1710.75
	202	17	568	20	583	20	2	3C144	35	5	0.57	56	2.79	1710.75
	202	20	576	48	580	66	2	3C144+	35	5	0.57	56	2.83	1710.75
	202	22	647	30	669	72	2	3C222	27	-20	0.45	-59	-6.06	1711.09
B10722	203	0	660	35	584	59	3	3C273	68	5	0.93	-22	-1.91	1710.94
	203	1	324	10	323	17	3	3C283	86	-1	1.02	-15	-1.05	1710.81
	203	3	319	11	319	15	2	3C298	91	9	1.05	-16	-0.98	1710.81
	203	13	348	11	320	10	3	3C48	85	12	1.02	16	1.24	1710.76
	203	15	414	13	432	14	3	3C144-	36	5	0.59	56	2.32	1710.75
	203	17	471	25	455	18	2	3C147	41	37	0.66	40	1.66	1710.80
	203	18	431	43	423	11	2	3C144	36	5	0.59	55	2.35	1710.76
	203	18	675	64	433	41	2	3C161	36	-35	0.59	39	1.79	1710.84
	203	22	394	31	460	29	2	3C222	26	-21	0.44	-59	-7.15	1711.10
B10723	204	3	422	30	371	32	3	3C298	90	9	1.04	-16	-1.08	1710.90
	204	13	476	20	455	21	2	3C48	86	12	1.02	16	1.24	1710.85
	204	15	570	29	505	24	3	3C144-	37	5	0.60	55	2.80	1710.82
	204	17	526	35	580	53	2	3C144	37	5	0.60	53	2.60	1710.82
B10724	205	0	386	44	377	44	2	3C273	66	5	0.91	-23	-2.17	1710.96
	205	1	563	22	633	69	2	3C283	84	0	1.01	-16	-1.18	1710.98
	205	3	302	38	319	75	2	3C298	89	9	1.04	-16	-1.01	1710.87
	205	13	424	10	444	11	3	3C48	87	12	1.03	16	1.29	1710.86
	205	15	450	16	453	17	4	3C144-	38	5	0.62	53	2.38	1710.84
	205	16	645	26	603	52	2	3C147	43	36	0.68	40	2.04	1710.90
	205	17	493	19	480	15	2	3C144	38	6	0.62	53	2.51	1710.85
	205	20	690	97	608	77	2	3C144+	38	6	0.62	53	2.91	1710.88
B10725	206	2	636	40	583	18	2	3C295	74	20	0.96	-9	-0.80	1711.02
	206	3	427	65	423	76	2	3C298	88	9	1.03	-15	-1.02	1710.97
	206	13	524	11	532	11	3	3C48	88	12	1.03	16	1.30	1710.93
	206	15	428	30	433	30	2	3C144-	39	6	0.63	51	2.24	1710.87
	206	16	717	31	639	25	2	3C147	44	35	0.69	39	2.10	1710.94
	206	17	490	14	479	14	3	3C144	39	6	0.63	51	2.42	1710.89
	206	18	662	54	614	65	2	3C161	38	-32	0.62	40	1.89	1710.95
	206	20	557	34	548	22	3	3C144+	39	6	0.63	52	2.64	1710.90
	206	22	620	51	563	29	2	3C237	28	-9	0.47	-59	-6.11	1711.24
B10726	207	1	792	36	768	35	3	3C283	82	0	1.00	-16	-1.21	1711.09
	207	13	681	14	688	14	3	3C48	89	13	1.04	15	1.21	1711.00
	207	15	436	21	429	20	3	3C144-	40	6	0.64	50	2.25	1710.91
	207	17	445	14	488	16	3	3C144	40	6	0.64	51	2.33	1710.91

SOLAR WIND

Interplanetary Scintillations

JULY 1981

DATE	DOY	UT HR	VMID KM/S	ERR	VPK KM/S	ERR	RATING 1-4	SOURCE	ELONG DEG	LAT DEG	DIST AU	DLON DEG	LAG DAY	ROTATION NUMBER
	207	18	417	46	383	90	2	3C161	38	-31	0.62	39	1.22	1710.94
	207	20	506	45	512	52	2	3C144+	40	6	0.64	50	2.46	1710.93
	207	22	464	49	512	48	2	3C237	28	-9	0.47	-61	-6.81	1711.26
810727	208	13	409	12	438	89	2	3C48	90	13	1.04	16	1.36	1710.97
	208	15	357	18	422	38	3	3C144-	41	6	0.66	50	1.99	1710.92
	208	16	466	24	326	14	2	3C147	45	34	0.71	38	1.69	1710.98
	208	17	460	16	454	16	3	3C144	41	6	0.66	50	2.39	1710.95
	208	18	347	14	341	24	3	3C161	39	-30	0.63	38	0.85	1710.96
	208	20	476	23	407	20	2	3C144+	41	6	0.66	50	2.38	1710.96
	208	22	307	20	453	37	2	3C237	27	-9	0.45	-61	-7.96	1711.27
810728	209	15	354	14	360	14	3	3C144-	42	6	0.67	49	1.94	1710.96
	209	17	416	12	402	12	3	3C144	42	6	0.67	49	2.19	1710.98
	209	18	330	15	349	15	2	3C161	40	-29	0.64	39	0.88	1710.99
	209	20	521	28	486	34	2	3C144+	42	6	0.67	49	2.49	1711.01
	209	22	282	22	297	23	2	3C237	26	-9	0.44	-63	-8.49	1711.30
810729	210	15	444	17	396	16	3	3C144-	43	6	0.68	48	2.25	1711.02
	210	17	401	12	393	12	4	3C144	43	6	0.68	48	2.10	1711.02
	210	18	331	13	335	33	2	3C161	40	-28	0.64	39	0.89	1711.03
	210	22	425	125	392	137	2	3C237	25	-10	0.42	-64	-7.41	1711.38
810730	211	0	418	24	386	22	2	3C273	61	6	0.87	-29	-2.78	1711.21
	211	1	407	58	394	76	2	3C283	78	0	0.98	-16	-1.31	1711.16
	211	2	458	28	506	26	2	3C298	83	10	1.01	-17	-1.26	1711.17
	211	13	527	47	697	93	2	3C48	92	13	1.05	15	1.32	1711.11
	211	15	467	20	403	28	3	3C144-	44	6	0.69	46	2.23	1711.07
	211	16	303	21	288	13	2	3C147	47	31	0.73	37	1.13	1711.03
	211	17	389	15	366	14	4	3C144	44	6	0.69	47	2.04	1711.05
	211	18	401	41	409	16	3	3C161	41	-27	0.66	38	1.27	1711.08
	211	20	405	18	356	15	2	3C144+	44	6	0.69	46	2.07	1711.06
	211	22	317	26	341	58	2	3C237	24	-10	0.41	-65	-8.45	1711.40
810731	212	0	471	39	515	34	2	3C273	60	6	0.87	-31	-2.89	1711.27
	212	1	226	19	244	18	2	3C283	77	0	0.98	-16	-1.41	1711.06
	212	2	323	22	288	35	2	3C298	83	10	1.01	-17	-1.29	1711.15
	212	13	407	73	460	37	2	3C48	93	13	1.06	15	1.34	1711.11
	212	15	394	15	398	15	4	3C144-	44	6	0.69	47	2.10	1711.08
	212	16	395	49	416	53	2	3C147	48	31	0.74	36	1.50	1711.11
	212	17	410	13	399	13	4	3C144	45	6	0.71	46	2.13	1711.09
	212	18	372	16	347	63	3	3C161	42	-26	0.67	37	1.13	1711.11
	212	20	393	15	374	14	3	3C144+	45	6	0.71	45	2.01	1711.09
	212	22	329	25	333	25	2	3C237	23	-11	0.39	-66	-8.46	1711.45
	212	23	407	23	348	36	2	3C273	59	6	0.86	-31	-3.06	1711.29

VMID IS A MEAN AND VPK IS A MAXIMUM VELOCITY IN THE IPS SCATTERING REGION.
THE REGION'S CENTROID IS SPECIFIED BY LAT, DIST, DLON.
LAG AND ROTATION NUMBER GIVE MAPPING TO EARTH AND SUN AT VMID.
* INDICATES NO ERROR AVAILABLE, SINCE ONLY TWO ANTENNAS WERE OPERATING.

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	0409	1115	WEIS				0438.1	0438.2	1				IIIB
	1119	1830	WEIS				1533.2	1534.7	1				IIIG
02	0409	1644	WEIS										
	1652	1830	WEIS										
03	0408	1831	WEIS				1414.6	1414.9	1				IIIG
04	0407	0747	WEIS										
	0751	1833	WEIS				1748.5	1807.9	2				II HB
			WEIS				1755.1	1756.9	2				IIIG
05	0408	1339	WEIS										
	1344	1830	WEIS				1616.9	1617.6	2				IIIG
06	0409	1830	WEIS										
07	0446	1831	WEIS										
08	0701	1253	WEIS										
	1258	1834	WEIS										
09	0408	1834	WEIS				1621.2	1622.3	2				IIIG
10	0526	1835	WEIS				0621.8	0632.8	3				IIIGG
			WEIS				0624.9	0627.9	3				II
			WEIS				0655.2	0655.6	3				IIIG
			WEIS				0908.8	0908.9	1				IIIB
			WEIS				1545.3	1550.9	2				IIIGG
11	0406	1100	WEIS				0939.7	0941.2	3				IIIG
	1104	1836	WEIS				1143.3	1145.9	2				IIIGG
			WEIS				1148.4	1149.6	2				IIIGG
			WEIS				1543.3	1544.6	2				IIIG
			WEIS				1734.1	1734.2	1				IIIB
12	0406	1635	WEIS				0451.8	0452.0	1				IIIB
			WEIS				0455.4	0456.3	2				IIIG
			WEIS				0508.2	0508.6	1				IIIG
			WEIS				0654.6	0655.4	2				IIIG
			WEIS				0713.7	0716.7	3				IIIG
			WEIS				0813.8	0814.7	1				IIIG
			WEIS				0815.8	0816.0	1				IIIB
			WEIS				1018.3	1018.7	1				IIIG
			WEIS				1021.3	1021.7	2				IIIG
			WEIS				1057.2	1057.3	1				IIIB
			WEIS				1107.1	1107.3	1				IIIB
			WEIS				1132.4	1132.5	1				IIIB
			WEIS				1134.8	1141.0	2				IIIGG
			WEIS				1145.2	1145.5	2				IIIG
			WEIS				1208.8	1209.9	2				IIIG
			WEIS				1222.3	1223.8	3				IIIGG
			WEIS				1226.2	1226.9	2				IIIG
			WEIS				1342.7	1343.4	2				IIIG
			WEIS				1350.1	1352.1	2				IIIG
			WEIS				1354.3	1357.7	2				IIIG
			WEIS				1624.6	1624.7	1				IIIG
	1641	1837	WEIS				1716.8	1717.2	2				IIIG
			WEIS				1719.7	1721.2	2				IIIG
			WEIS				1804.8	1805.7	2				IIIG
			WEIS				1808.2	1809.6	2				IIIG
			WEIS				1810.9	1814.8	2				IIIGG
13	0406	1837	WEIS				0406.8	0407.3	2				IIIG
			WEIS				0418.2	0418.7	2				IIIG
			WEIS				0455.7	0456.1	2				IIIG
			WEIS				0505.0	0505.1	1				IIIB
			WEIS				0507.9	0508.0	1				IIIB
			WEIS				0513.6	0513.7	1				IIIB
			WEIS				0515.2	0515.3	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
13			WEIS				0525.7	0528.9	3				IIIGG
			WEIS				0531.1	0531.2	1				IIIB
			WEIS				0615.8	0616.2	2				IIIG
			WEIS				0642.2	0643.8	3				IIIG
			WEIS				0654.8	0656.8	2				IIIG
			WEIS				0658.3	0702.3	2				IIIGG
			WEIS				0839.4	0842.3	2				IIIG
			WEIS				0858.9	0901.3	3				IIIG
			WEIS				1019.1	1019.2	1				IIIB
			WEIS				1105.8	1105.9	1				IIIB
			WEIS				1159.3	1200.0	2				IIIG
			WEIS				1213.7	1213.8	1				IIIG
			WEIS				1226.7	1227.0	2				IIIG
			WEIS				1408.3	1408.5	1				IIIG
			WEIS				1408.4	1408.6	1				IIIG
			WEIS				1409.6	1409.7	1				IIIG
			WEIS				1426.7	1427.0	1				IIIG
			WEIS				1442.1	1443.2	2				IIIB
			WEIS				1452.7	1453.2	2				IIIG
			WEIS				1454.3	1454.5	2				IIIG
			WEIS				1455.7	1458.6	2				IIIGG
			WEIS				1501.7	1501.8	1				IIIB
			WEIS				1605.3	1605.4	1				IIIB
			WEIS				1610.7	1611.0	1				IIIG
			WEIS				1622.7	1622.8	1				IIIB
			WEIS				1632.5	1632.7	2				IIIG
			WEIS				1721.3	1722.2	2				IIIG,DCIM
			WEIS				1812.3	1813.5	2				IIIG
14	0405	0742	WEIS				0443.8	0444.0	1				IIIB
			WEIS				0656.2	0656.9	2				IIIG
	0755	1838	WEIS				0859.3	0900.3	1				IIIG
			WEIS				0903.6	0903.8	1				IIIB
			WEIS				0919.5	0920.2	1				IIIG
			WEIS				0937.2	0937.9	1				IIIG
			WEIS				1047.3	1047.5	1				IIIB
			WEIS				1104.3	1104.7	2				IIIG
			WEIS				1203.0	1203.4	2				IIIG
			WEIS				1212.5	1212.7	1				IIIG
			WEIS				1310.4	1311.8	3				IIIG
			WEIS				1332.7	1338.5	2				IIIGG
			WEIS				1340.3	1340.4	1				IIIB
			WEIS				1347.5	1347.9	2				IIIG
			WEIS				1408.2	1408.3	2				IIIB
			WEIS				1438.7	1440.8	2				IIIGG
			WEIS				1522.1	1522.3	1				IIIB
			WEIS				1648.9	1649.3	1				IIIG
			WEIS				1815.9	1816.3	1				IIIG
15	0405	1328	WEIS				0533.0	0534.2	1				IIIG
			WEIS				0537.1	0537.2	1				IIIB
			WEIS				0711.8	0712.9	2				IIIG
			WEIS				0828.8	0829.5	1				IIIG
			WEIS				0831.9	0832.8	2				IIIG
			WEIS				1053.2	1054.9	3				IIIG
			WEIS				1139.1	1139.5	3				IIIG
			WEIS				1151.1	1151.1	2				IIIG
			WEIS				1201.2	1201.8	2				IIIG
			WEIS				1258.3	1258.7	2				IIIG
	1332	1839	WEIS				1457.5	1459.4	2				IIIG
			WEIS				1552.8	1552.9	1				IIIB
			WEIS				1612.6	1613.9	2				IIIG
			WEIS				1816.1	1816.3	1				IIIG
16	0405	1840	WEIS				0422.8	0422.9	1				IIIB
			WEIS				0551.5	0552.6	2				IIIG
			WEIS				0641.7	0642.3	2				IIIG
			WEIS				0655.9	0657.3	2				IIIG
			WEIS				0659.5	0659.7	2				IIIB
			WEIS				1231.7	1231.8	1				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
16			WEIS				1414.3	1417.4	2				IIIG
17	0405	0423	WEIS				0411.9	0412.1	2				IIIG
	0557	1840	WEIS				0607.1	0607.4	2				IIIG
			WEIS				0613.7	0614.2	3				IIIG
			WEIS				0806.4	0806.5	1				IIIB
			WEIS				0829.3	0829.4	2				IIIG
			WEIS				0859.3	0859.8	1				IIIG
			WEIS				0912.9	0914.1	2				IIIG
			WEIS				0930.9	0931.4	2				IIIG
			WEIS				0946.7	0954.4	3				IIIGG
			WEIS				1034.4	1037.3	3				IIIG
			WEIS				1125.8	1125.9	1				IIIB
			WEIS				1151.2	1154.3	3				IIIG
			WEIS				1156.2	1157.1	3				IIIG
			WEIS				1158.7	1158.7	2				IIIG
			WEIS				1203.9	1205.3	2				IIIG
			WEIS				1209.1	1209.8	3				IIIG
			WEIS				1213.8	1307.0	2				IIIG
			WEIS				1409.0	1729.0	2				IN
			WEIS				1623.0	1626.2	3				IIIG
			WEIS				1639.6	1639.8	2				IIIG
18	0405	1131	WEIS				0627.2	0627.6	2				IIIG
	1135	1841	WEIS				1249.0	1249.4	2				IIIG
			WEIS				1614.7	1615.0	2				IIIB
19	0406	1658	WEIS										
	1706	1841	WEIS										
20			WEIS				0409.0	1515	1				IN
	0405	1840	WEIS				0449.5	0450.8	2				IIIG
			WEIS				0540.8	0540.9	1				IIIB
21	0405	0731	WEIS				0652.7	0652.9	1				IIIB
	0744	0821	WEIS				0813.8	0814.3	2				IIIG
	1300	1842	WEIS				1306.9	1308.5	3				IIIG
			WEIS				1309.9	1310.4	3				IIIG
			WEIS				1404.5	1404.8	1				IIIG
			WEIS				1408.0	1408.8	2				IIIG
			WEIS				1412.5	1412.6	1				IIIG
			WEIS				1443.3	1444.1	3				IIIG
			WEIS				1514.2	1514.3	1				IIIG
			WEIS				1516.3	1516.4	1				IIIG
			WEIS				1527.7	1527.9	2				IIIG
22	0405	1303	WEIS				0448	1611	2				IIIS
	1309	1842	WEIS				0739.7	0739.9	2				IIIB
			WEIS				0852.2	0852.7	2				IIIG
			WEIS				1506.9	1508.6	3				IIIG
23	0507	1332	WEIS				0518	1332	2				IIIN
			WEIS				0530	1327	2				IN
			WEIS				0949.7	0950.1	2				IIIG
			WEIS				0955.7	0957.3	2				IIIG
			WEIS				1110.3	1119.8	3				IIIGG
			WEIS				1612	1715	2				IIIN
24	0430	0758	WEIS				0430	0752	2				IN
	0800	1300	WEIS				0546	1300	3				IIIS
			WEIS				0803	1300	2				IS
			WEIS				0835.0	0836.3	2				DCIM
25	0537	0659	WEIS				0537	1827	2				IIIS
	0706	1842	WEIS				0537	1730	2				CONT
			WEIS				0537	1842	2				I
			WEIS				0605.3	0605.7	3				IIIG
			WEIS				0921.1	0921.7	2				IIIG
			WEIS				1227.5	1228.7	2				IIIG,RS
			WEIS				1240.3	1240.5	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

JUNE 1981

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
25			WEIS				1324.7	1325.4	3				IIIG
			WEIS				1328.2	1332.4	3				IIIGG
			WEIS				1730	1842	2				CONT
26			WEIS				0406	1842	2				I
	1240	1842	WEIS				0406	1700	2				CONT
	0406	1219	WEIS				0406	1839	2				IIIS,DP
			WEIS				0452	0501	2				CONT
			WEIS				1515.5	1516.6	3				IIIG
			WEIS				1533.1	1533.8	3				IIIG
			WEIS				1700	1842	2				CONT
27			WEIS				0432	0736	1				IIIN
	0407	1815	WEIS				0447	1812	2				IN
	1124	1843	WEIS				0707.3	0708.8	3				IIIG
			WEIS				0853.7	0855.2	3				IIIG
			WEIS				0859.3	0914.7	2				IIIG
			WEIS				0906.1	0933.0	2				II HARM
			WEIS				0938.1	0939.5	2				IIIG
28	0407	1842	WEIS				0430.3	0430.7	2				IIIG
			WEIS				0639	1740	1				IIIN
29			WEIS				0423	1731	1				DP,N
	0408	0838	WEIS				0425.5	0428.4	2				DCIM
			WEIS				0426.3	0428.7	2				IIIGG
			WEIS				0650.7	0650.8	1				IIIB
			WEIS				0703.7	0703.8	1				IIIB
			WEIS				0813.1	0813.2	1				IIIB
			WEIS				0816.9	0817.0	1				IIIB
	0900	0920	WEIS										
	0926	1843	WEIS				1041.5	1041.7	1				IIIB
			WEIS				1046.7	1046.8	1				IIIB
			WEIS				1050.8	1050.9	1				IIIB
			WEIS				1342.7	1342.8	1				IIIB
			WEIS				1358.7	1358.8	1				IIIB
			WEIS				1420.6	1420.7	1				IIIB
			WEIS				1424.2	1424.3	1				IIIB
			WEIS				1433.0	1433.1	1				IIIB
			WEIS				1441.8	1442.0	1				IIIB
			WEIS				1541.8	1549.1	3				IIIGG
			WEIS				1621.1	1621.8	3				IIIG
30	0408	1456	WEIS				0415.7	0415.9	3				IIIB
			WEIS				0427.3	0428.3	3				IIIG
			WEIS				0540.3	0540.6	2				IIIG
			WEIS				0733.3	0736.0	2				IIIG
			WEIS				0808.0	0808.5	2				IIIG
			WEIS				1222.0	1222.2	2				IIIB
			WEIS				1307.4	1307.5	1				IIIB
	1501	1842	WEIS				1641.7	1641.8	1				IIIB

The symbols used under the column heading SPECTRAL TYPE have the following definitions:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

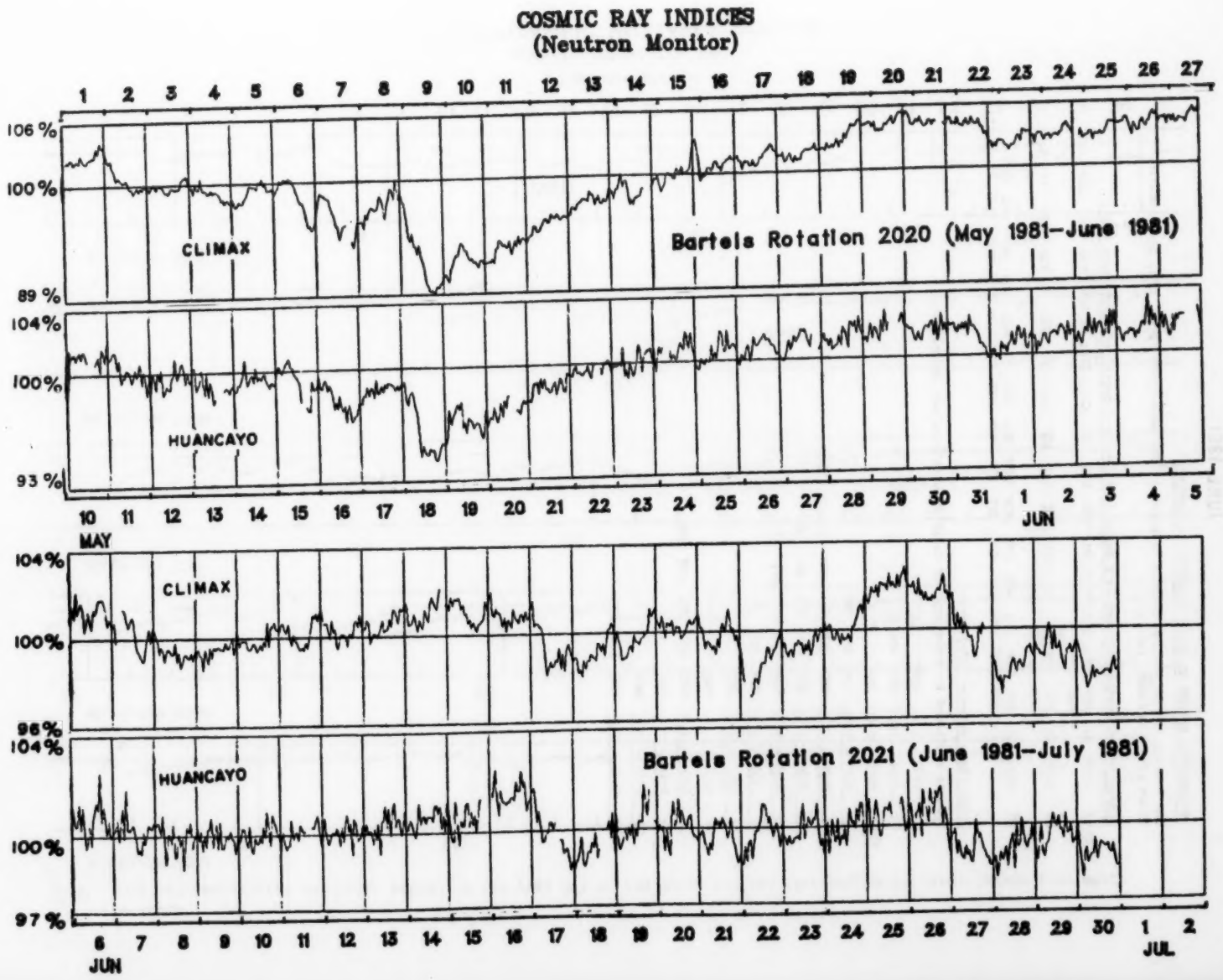
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES
(Neutron Monitors)

JUNE 1981

June 1981	CLIMAX Average (cts/h)/100	HUANCAYO Average (cts/h)/100
1	3648.7	1705.0
2	3669.9	1712.3
3	3673.8	1718.3
4	3702.1	1719.1
5	3717.3	1725.3(36)
6	3729.3	1726.7
7	3691.3	1719.8
8	3661.2	1714.7
9	3663.5	1714.6
10	3680.8	1716.2
11	3690.9	1716.5
12	3695.2	1717.3
13	3703.9	1721.2
14	3723.0	1725.4
15	3722.1	1724.6
16	3714.8	1740.7
17	3661.5	1714.7
18	3651.5	1704.3
19	3674.7	1718.4
20	3694.1	1717.1
21	3678.1	1710.2
22	3631.3	1711.9
23	3660.7	1712.9
24	3688.5	1714.8
25	3757.3	1722.9
26	3747.5	1725.0
27	3681.9	1699.9
28	3620.1	1700.2
29	3651.0	1708.1
30	3613.9	1696.4
MEAN	3683.5	1715.6

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.


COSMIC RAY INDICES
(Neutron Monitor)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
106 %
100 %
89 %
CLIMAX
Bartels Rotation 2020 (May 1981–June 1981)
104%
100%
93 %
HUANCAYO
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5
MAY
JUN
104%
100%
96%
CLIMAX
104%
100%
97 %
HUANCAYO
Bartels Rotation 2021 (June 1981–July 1981)
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2
JUN
JUL

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

JUNE 1981

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-Bulletin nr. 32h, page 106-116.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

06 0946 A: FRD BNG HUA MPO; B: WNG HRB AQU KAK GNA; C: NGK TOL KNY LNP CZT KGL DUM

07 0823 A: EBR HUA; B: WNG WIT NGK CLF AQU TOL CZT KGL; C: HAD DUM (si: A: HRB; bps: A: MPO)

29 0610 A: SOD NUR ESK WNG COI ALM BNG HUA MPO; B: WIT NGK HAD DOU CLF MMB AQU EBR TOL KAK HTY LNP GNA CZT KGL; C: KNY DUM (si: B: HRB)

Solar-flare effects (sfe)

Effects confirmed by ionosperic or solar observations are underlined.

03 0739 - .... BNG

05 1209 - 1227 BNG MPO

05 2028 - 2105 ALM

10 0621 - 0645 KAK HTY KNY

17 0004 - 0033 MMB KAK HTY KNY (bp:C: MPO)

24 0630 - 0712 MMB KAK HTY KNY LNP

25 0059 - 0130 KNY (bp:B: MPO)

25 2159 - 2230 HTY KNY

26 0331 - 0351 HTY

27 1256 - .... BNG

28 0359 - 0410 MMB KAK HTY KNY LNP

28 1510 - 1520 HUA

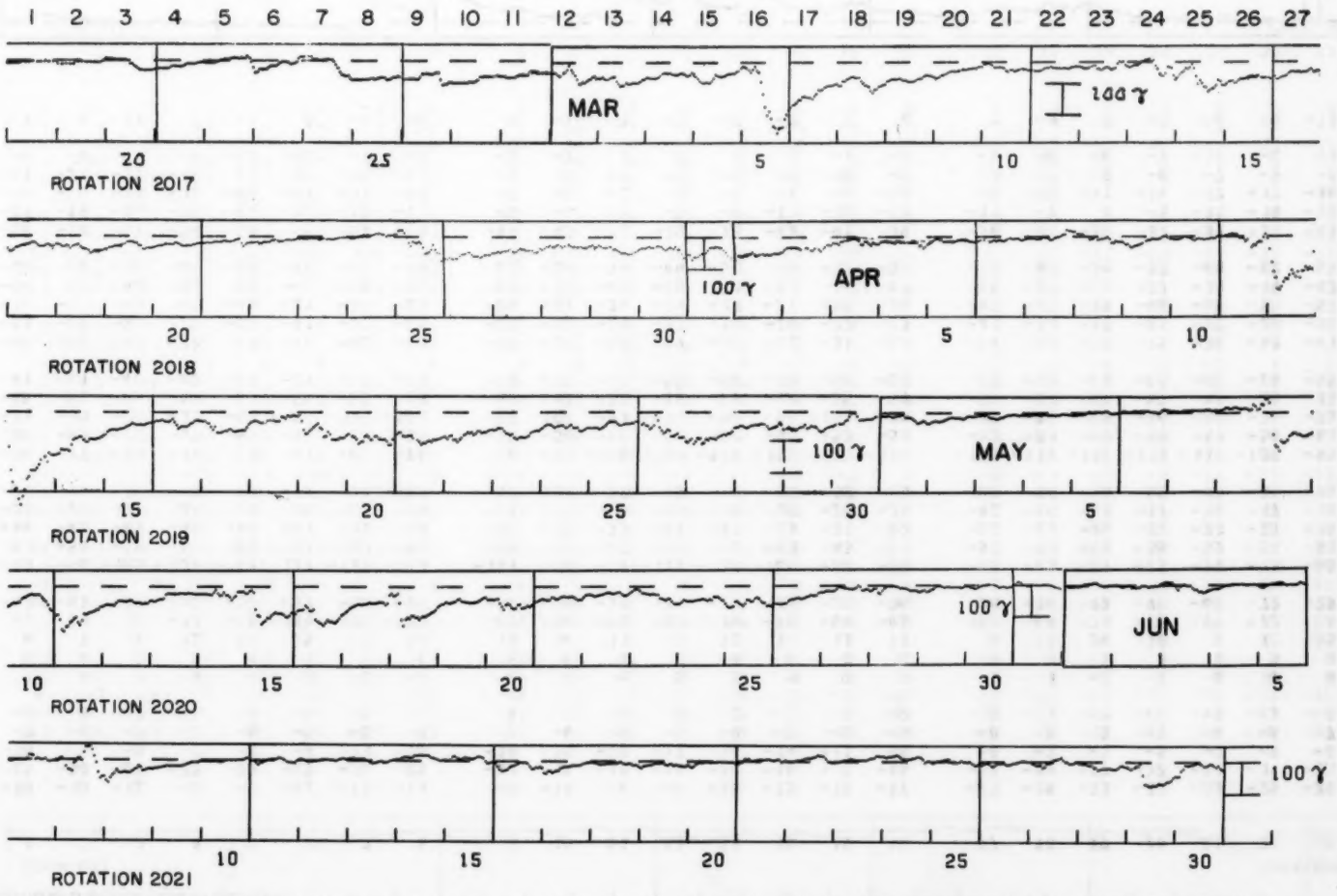
29 0039 - 0115 MMB

29 0419 - 0455 MMB KAK HTY

GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

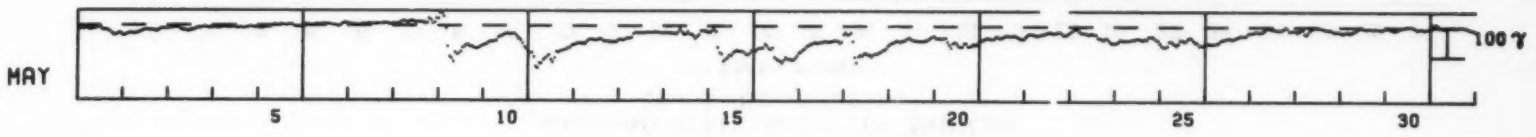
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

MAY 1981

NASA/GODDARD SPACE FLIGHT CENTER

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-10	-10	-12	-9	-9	-13	-13	-11	-9	-10	-6	-7	-15	-15	-15	-17	-21	-26	-33	-32	-30	-25	-28	-34
2	-35	-30	-28	-25	-27	-29	-26	-25	-22	-19	-15	-14	-14	-16	-15	-16	-17	-20	-17	-12	-11	-11	-11	-12
3	-10	-8	-8	-7	-8	-8	-13	-16	-16	-18	-20	-17	-14	-14	-11	-8	-8	-7	-5	-5	-7	-9	-8	-7
4	-7	-8	-9	-7	-6	-5	-5	-8	-8	-6	-5	-8	-9	-7	-8	-9	-8	-8	-5	-4	-6	-6	-7	-7
5	-9	-8	-7	-6	-6	-5	-4	1	4	1	2	3	2	2	1	2	4	3	-1	-4	-3	-3	-3	-2
6	1	4	3	1	1	2	5	4	2	5	6	5	5	5	3	2	1	1	-2	1	6	10	8	7
7	6	4	5	3	4	1	3	6	6	6	7	6	7	6	6	6	6	7	9	9	8	5	6	8
8	6	7	8	12	15	15	12	12	15	16	13	12	12	12	13	11	6	10	24	18	8	12	25	23
9	42	41	30	-10	-70	-104	-110	-121	-89	-96	-92	-87	-74	-70	-64	-63	-70	-69	-74	-76	-75	-73	-68	-66
10	-63	-61	-56	-52	-54	-51	-50	-39	-36	-34	-29	-26	-25	-28	-27	-26	-28	-36	-42	-49	-60	-72	-77	-102
11	-90	-90	-105	-137	-141	-127	-125	-113	-109	-102	-97	-113	-121	-108	-87	-89	-85	-83	-81	-79	-74	-73	-65	-63
12	-62	-58	-58	-59	-59	-61	-53	-46	-45	-45	-47	-48	-46	-43	-45	-51	-52	-52	-52	-55	-53	-54	-54	-46
13	-44	-48	-47	-42	-40	-41	-38	-26	-22	-23	-23	-24	-23	-23	-21	-22	-22	-23	-20	-22	-22	-23	-24	-23
14	-23	-23	-24	-24	-25	-26	-27	-18	-11	-22	-29	-27	-18	-28	-28	-34	-42	-35	-30	-17	-16	-17	-16	-22
15	-21	-14	-12	-19	-73	-90	-94	-118	-112	-107	-98	-99	-91	-86	-82	-85	-85	-86	-88	-95	-96	-91	-82	-83
16	-86	-77	-74	-74	-73	-61	-67	-76	-78	-73	-105	-111	-114	-117	-123	-113	-105	-112	-110	-113	-114	-107	-99	-90
17	-86	-81	-76	-69	-65	-62	-59	-55	-55	-58	-55	-55	-53	-50	-53	-53	-53	-51	-49	-49	-51	-58	-53	-27
18	-21	-30	-28	-22	-52	-105	-123	-102	-97	-100	-91	-91	-96	-96	-103	-94	-93	-92	-88	-86	-81	-79	-73	-68
19	-60	-55	-55	-49	-51	-54	-50	-49	-46	-40	-38	-46	-48	-49	-50	-51	-50	-51	-49	-47	-43	-38	-35	-34
20	-41	-41	-40	-42	-39	-39	-53	-63	-73	-58	-53	-58	-66	-70	-68	-58	-57	-68	-67	-65	-60	-64	-59	-53
21	-48	-46	-42	-39	-41	-42	-43	-42	-34	-36	-40	-39	-35	-32	-31	-33	-34	-32	-31	-35	-38	-43	-41	-41
22	-33	-27	-26	-25	-27	-31	-32	-29	-27	-26	-24	-21	-19	-20	-23	-23	-21	-18	-18	-25	-29	-29	-26	-20
23	-16	-11	-8	-9	-14	-21	-21	-23	-24	-27	-24	-24	-27	-27	-38	-39	-42	-45	-39	-40	-48	-55	-57	-56
24	-56	-50	-43	-46	-48	-46	-48	-46	-44	-43	-43	-40	-41	-43	-46	-41	-44	-34	-35	-33	-38	-44	-47	-56
25	-64	-68	-68	-64	-50	-49	-55	-59	-63	-56	-44	-44	-50	-48	-39	-37	-41	-49	-54	-55	-64	-62	-64	-62
26	-56	-58	-57	-59	-58	-56	-56	-48	-44	-43	-42	-39	-38	-42	-41	-39	-36	-34	-30	-32	-31	-31	-23	-20
27	-21	-19	-16	-16	-18	-17	-16	-12	-5	-4	-7	-9	-9	-11	-12	-12	-11	-7	0	-5	-15	-14	-12	-13
28	-18	-15	-10	-10	-23	-27	-17	-10	-5	-2	-2	-3	-3	-4	-6	-10	-9	-10	-11	-14	-17	-17	-16	-17
29	-21	-21	-17	-15	-21	-19	-15	-13	-9	-4	-3	-4	-5	-8	-5	-6	-7	-7	-6	-6	-7	-9	-8	-4
30	-4	-4	-8	-9	-12	-10	-7	-4	-2	-2	1	2	1	1	-1	-4	-9	-6	-6	-7	-10	-6	-7	1
31	4	9	11	7	-1	0	-4	-4	0	-1	1	-2	-1	-1	1	0	1	-1	-2	-5	-8	-9	-12	-13



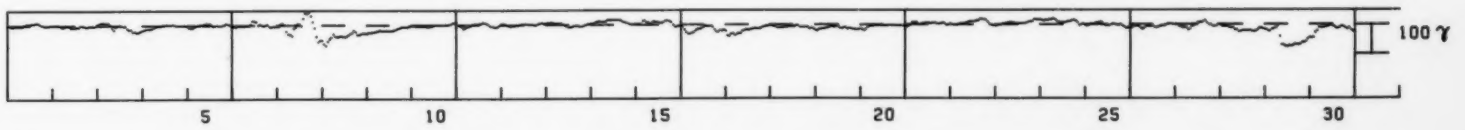
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

JUNE 1981

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	0	-5	-5	-3	-4	-2	-4	-3	0	4	5	4	6	6	9	8	5	1	0	-3	-2	-2	0	0
2	-1	1	1	-1	-5	-6	-3	-1	-1	-8	-6	-8	-6	-6	-1	-1	-1	-5	-4	-2	-2	-2	-2	3
3	6	9	10	9	7	8	1	-9	-15	-5	0	1	-2	-3	-2	-11	-14	-15	-22	-20	-24	-23	-19	-16
4	-14	-12	-12	-12	-10	-7	-4	-1	-3	-1	1	2	2	1	1	2	1	-1	-1	0	-1	0	-1	-3
5	-8	-10	-8	-4	-1	1	3	3	4	6	7	5	1	-2	-1	0	-1	-2	0	2	7	3	1	-3
6	-5	-6	-3	-2	-2	-2	-2	-1	-2	3	14	13	11	-1	3	0	-2	0	2	-5	-7	-4	-5	-4
7	-4	5	6	0	-21	-31	-32	-37	-11	-7	5	4	-2	23	41	39	43	31	11	-10	-38	-57	-52	-52
8	-64	-70	-55	-47	-41	-31	-38	-40	-38	-37	-38	-39	-38	-34	-29	-26	-18	-23	-33	-32	-29	-27	-27	-29
9	-25	-26	-24	-23	-21	-20	-17	-19	-19	-18	-18	-18	-19	-18	-16	-14	-12	-10	-7	-6	-7	-8	-5	-3
10	-3	-4	-4	-5	-4	-4	-4	-5	-7	-5	-4	-1	0	0	0	0	0	1	1	1	2	6	8	7
11	0	-3	-7	-13	-9	-7	-4	-2	2	3	4	4	4	8	7	4	1	-4	-6	-7	-8	-8	-2	3
12	4	2	-1	-3	-5	-3	-3	-2	-1	0	3	2	3	2	1	1	1	-1	1	4	6	7	4	5
13	7	8	8	5	4	4	4	4	1	0	-5	-8	-8	-7	-4	-3	-2	-6	-6	-4	-1	1	3	4
14	4	5	9	12	12	10	10	12	16	16	17	16	17	16	16	15	11	9	7	5	2	0	2	4
15	2	1	4	13	14	9	7	3	9	12	9	9	6	7	10	13	14	12	9	-1	-7	-6	-3	-1
16	-7	-17	-26	-31	-30	-28	-25	-19	-14	-14	-11	-8	-3	-5	-5	-4	-8	-17	-24	-24	-18	-21	-17	-21
17	-37	-38	-31	-30	-36	-32	-29	-29	-21	-19	-16	-18	-16	-14	-13	-12	-13	-13	-12	-8	-7	-4	-5	-3
18	-4	-5	-7	-10	-11	-10	-9	-8	-8	-6	-6	-7	-7	-2	-2	-8	-9	-9	-7	-9	-13	-11	-13	-18
19	-21	-15	-13	-13	-12	-12	-9	-6	-7	-9	-6	-6	-12	-13	-10	-9	-14	-11	-13	-15	-15	-17	-15	-11
20	-16	-19	-15	-9	-5	-4	-5	-3	-3	-1	-4	-3	-3	-3	-2	-2	-3	-3	-2	-4	-3	-2	-5	-6
21	-9	-4	-1	8	5	9	2	0	4	5	6	5	4	5	7	7	3	2	4	6	4	-2	0	4
22	0	-1	-2	0	2	3	4	5	7	10	11	11	12	13	14	20	17	17	14	8	0	-1	-4	-4
23	-3	-1	0	2	3	4	5	8	6	5	3	4	3	4	4	4	7	10	10	12	17	16	15	15
24	14	12	15	15	16	17	20	16	12	8	7	7	6	8	11	11	14	15	12	6	-4	1	2	-2
25	-5	-2	2	1	3	5	6	8	7	-1	-4	-4	-4	-1	3	-1	-2	-3	0	-5	-9	-13	-10	-9
26	-11	-7	-5	-4	-8	-14	-14	-10	-5	-7	-6	-3	-9	-11	-9	-7	-4	-4	-2	1	2	2	0	-1
27	0	-6	-8	-12	-10	-10	-18	-14	-6	-5	-1	5	7	8	10	13	5	-1	-1	-6	-7	-5	0	-1
28	-6	-7	-7	-7	-10	-12	-12	-18	-18	-25	-24	-21	-20	-22	-20	-20	-23	-24	-23	-19	-13	-12	-15	-16
29	-18	-23	-21	-16	-13	-12	-5	-41	-69	-70	-74	-76	-71	-74	-71	-66	-68	-69	-66	-61	-61	-57	-49	-44
30	-45	-44	-28	-21	-10	-12	-11	-9	-8	-6	-2	-5	-8	-13	-13	-10	-6	-8	-12	-15	-11	-19	-23	-28



☆U.S. GOVERNMENT PRINTING OFFICE:1981—578-013/15